ESA370 SERVICE DOCUMENT PACKAGE

(P/N: ZD/ESA370)

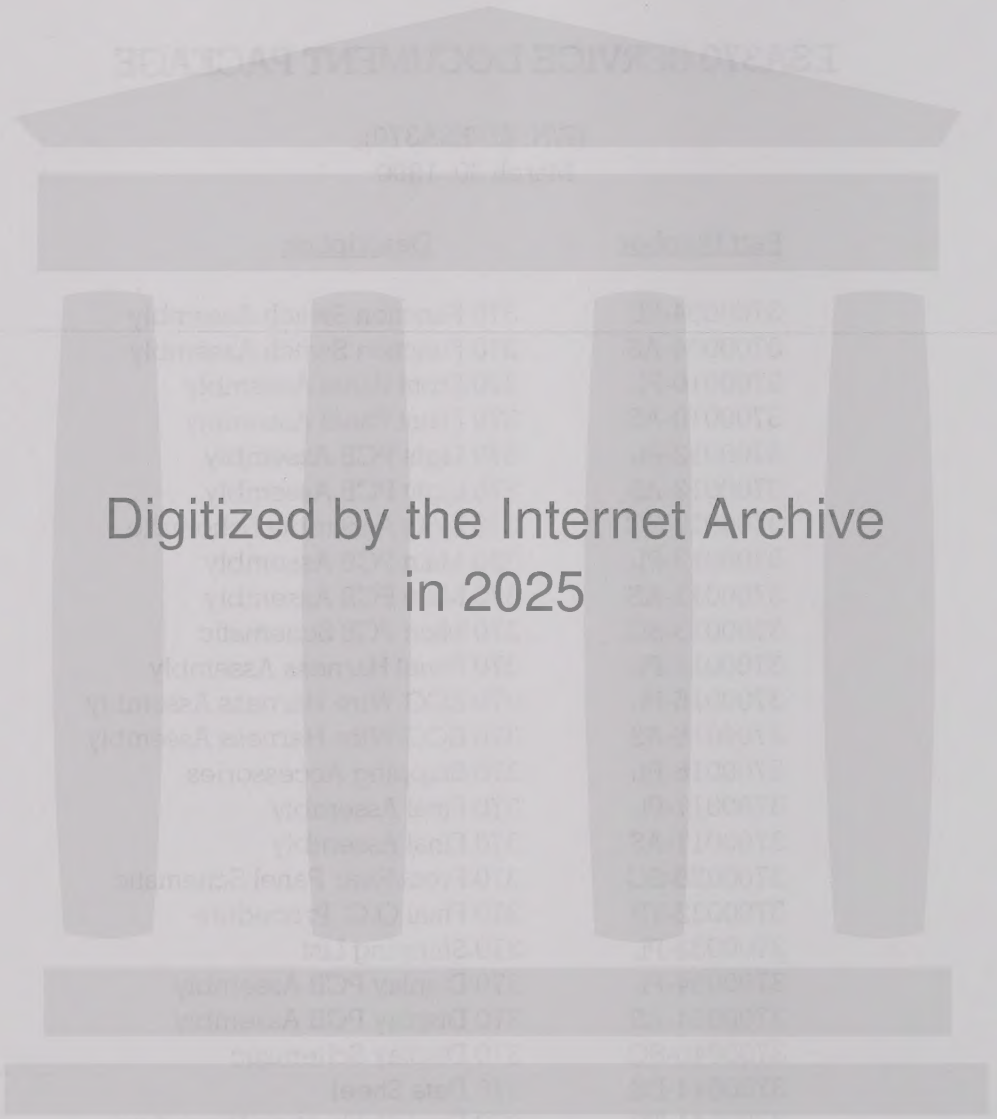
March 30, 1990

BIO-TEK® INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998, WINOOSKI, VERMONT 05404-0998

ESA370 SERVICE DOCUMENT PACKAGE

(P/N: ZD/ESA370)
March 30, 1990

Part Number	Description
3700004-PL	370 Function Switch Assembly
3700004-AS	370 Function Switch Assembly
3700010-PL	370 Front Panel Assembly
3700010-AS	370 Front Panel Assembly
3700012-PL	370 Light PCB Assembly
3700012-AS	370 Light PCB Assembly
3700012-SC	370 Light Assembly Schematic
3700013-PL	370 Main PCB Assembly
3700013-AS	370 Main PCB Assembly
3700013-SC	370 Main PCB Schematic
3700014-PL	370 Panel Harness Assembly
3700015-PL	370 ECG Wire Harness Assembly
3700015-AS	370 ECG Wire Harness Assembly
3700016-PL	370 Shipping Accessories
3700017-PL	370 Final Assembly
3700017-AS	370 Final Assembly
3700028-SC	370 Front/Rear Panel Schematic
3700032-TP	370 Final Q.C. Procedure
3700033-PL	370 Shipping List
3700034-PL	370 Display PCB Assembly
3700034-AS	370 Display PCB Assembly
3700040-SC	370 Display Schematic
3700044-DS	370 Data Sheet
3700044-TP	370 Final Calibration Procedure
3700046-PL	370 Back Panel Assembly
3700046-AS	370 Back Panel Assembly
94051	370 Operators Manual



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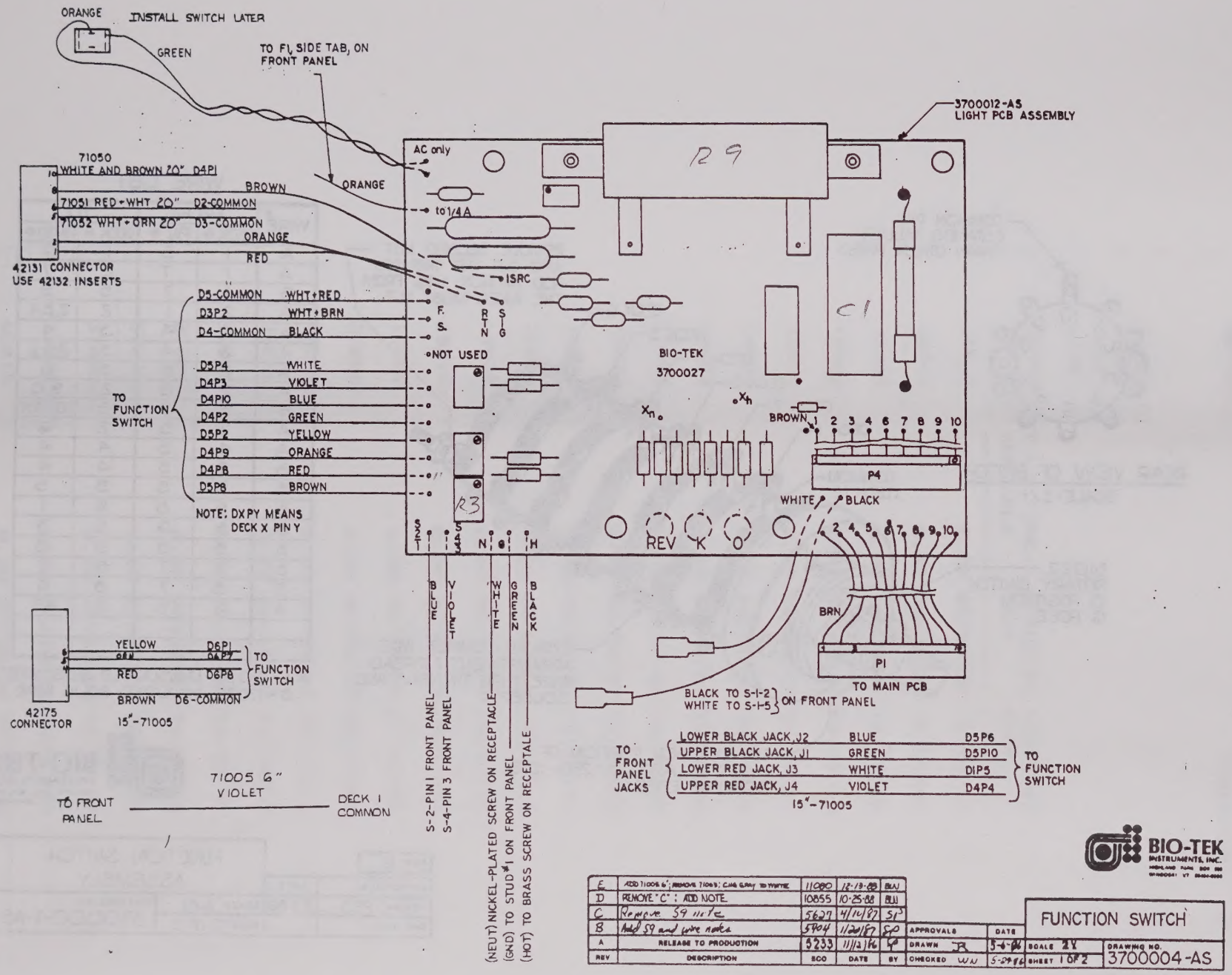
BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 761
PCB ASSEMBLIES
PART: 3700004
DESC: 370 FUNCTION SWITCH ASBY UOM: EA SC: M5 REV: F

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	-OFFSET FIXED	LD TIME-- VARIABLE	EFFECTIV DATE	INACTIVE DATE
3700012	370 LIGHT ASBY	L	0	X1	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42031 P3	TERM RING 3/8 22-16 GA	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42034	TERM RING #6 22-16 GA INS	D	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42069	TERM FORK #8 22-16 GA INS	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
42131 P3	HOUS 10-S .100 LOK	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42132	TERM .100 22-30 GA GOLD	A	0	F4	EA	6.00	1.000	0	0	0.00	00/00/00	99/99/99
42175	INDS 10-S .100 22GA	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
49075	TIE CABLE 11" L 3" DIA	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
51022 S5	SW ROT 10-POS 6-POLE	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
71005 VIOLET	WIRE HOOK-UP 22 AWG	A	8	F4	FT	0.50	1.000	0	0	0.00	12/13/88	99/99/99
71050 20"	WIRE HOOK UP 22AWG W/BRN	A	10	F4	FT	1.60	1.000	0	0	0.00	12/13/88	99/99/99
71051 20"	WIRE HOOK UP 22AWG W/RED	A	9	F4	FT	1.60	1.000	0	0	0.00	12/13/88	99/99/99
71052 20"	WIRE HOOK UP 22AWG W/ORN	A	11	F4	FT	1.60	1.000	0	0	0.00	12/13/88	99/99/99



REV	DESCRIPTION	ECO	DATE	BY
E	ADD 71005 6"; REMOVE 71063; CHG GRAY TO WHITE	11080	12-13-88	BLU
D	REMOVE "C"; ADD NOTE.	10855	10-25-88	BLU
C	Remove S9 note	5627	4/14/87	SP
B	Add S9 and wire notes	5504	11/20/87	SP
A	RELEASE TO PRODUCTION	5233	11/12/86	SP

APPROVALS	DATE
DRAWN R	5-6-86
CHECKED WN	5-29-86

FUNCTION SWITCH

SCALE 2X | SHEET 1 OF 2 | DRAWING NO. 3700004-AS

BIO-TEK INSTRUMENTS, INC.

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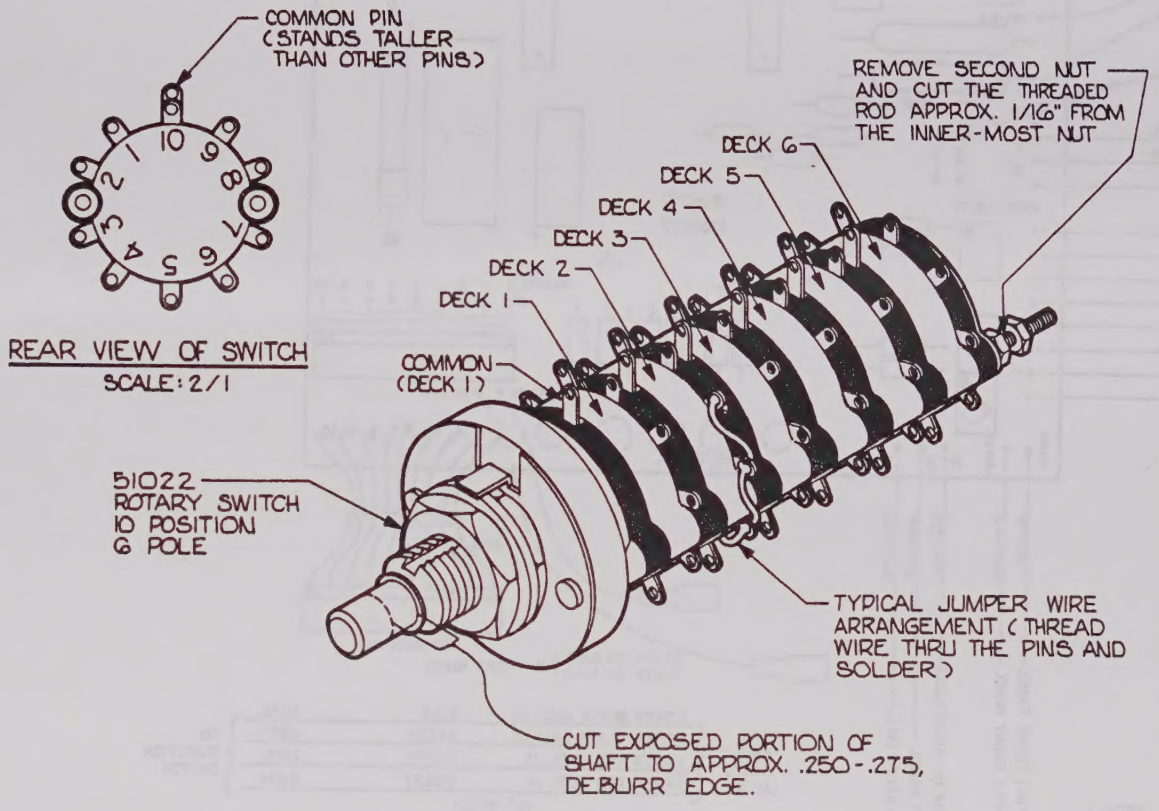
COMMON PIN (STANDS TALLER THAN OTHER PINS)
REAR VIEW OF SWITCH
SCALE: 2/1
REMOVE SECOND NUT AND CUT THE THREADED ROD APPROX. 1/16" FROM THE INNER-MOST NUT
DECK 6
DECK 5
DECK 4
DECK 3
DECK 2
DECK 1
COMMON (DECK 1)
51022 ROTARY SWITCH 10 POSITION 6 POLE
TYPICAL JUMPER WIRE ARRANGEMENT (THREAD WIRE THRU THE PINS AND SOLDER)
CUT EXPOSED PORTION OF SHAFT TO APPROX. .250-.275, DEBURR EDGE.

WIRE LIST

WIRE*	FROM		TO	
	DECK #	PIN #	DECK #	PIN(S) #
A	1	5	1	6
A	1	7	2	7
B	1	7	5	9
A	2	1	2	2,3,4
A	2	4	3	4
A	3	4	3	5,7,10,8,6
A	2	8	3	8
A	2	8	2	9,10
B	3	9	5	COMMON
A	2	5	2	6
A	4	3	4	4
B	2	5	4	4
B	3	5	5	5
B	5	5	5	1
B	3	6	5	3
B	5	3	5	10
B	3	7	5	7
B	5	7	5	4
A	6	5	6	6,7

*A = 71025 - UNINSULATED BUSS WIRE
B = 17022 - INSULATED SOLID WIRE

BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT 05404-0998

REV: E		FUNCTION SWITCH ASSEMBLY	
APPROVALS	DATE		
DRAWN PEB	8-6-86	SCALE 2/1	DRAWING NO. 3700004-AS
CHECKED		SHEET 2 OF 2	

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BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 762
PANEL ASSEMBLIES
PART: 3700010
DESC: 370 FRONT PANEL ASBY UOM: EA SC: X1 REV: J

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET FIXED	LD TIME-- VARIABLE	EFFECTIV DATE	INACTIVE DATE
12009	SCR PAN 6-32X3/4 SS SLOT	A	0	F4	EA	5.00	1.000			0.00	00/00/00	99/99/99
12011	SCR PAN 4-40X3/16 SS SLOT	A	0	F4	EA	2.00	1.000			0.00	00/00/00	99/99/99
12022	SCR PAN 6-32X1/4 SS SLOT	A	0	F4	EA	2.00	1.000			0.00	00/00/00	99/99/99
12024	SCR PAN 6-32X5/8 SS SLOT	A	0	F4	EA	2.00	1.000			0.00	00/00/00	99/99/99
12029	SCR PAN 6-32X5/16 SS SLOT	A	0	F4	EA	4.00	1.000			0.00	00/00/00	99/99/99
14003	NUT HEX 4-40 STEEL	A	0	F4	EA	2.00	1.000			0.00	00/00/00	99/99/99
14009	NUT BEV 15/32 BLACK	A	0	F4	EA	4.00	1.000			0.00	00/00/00	99/99/99
15002	LOCKNUT 4-40 STEEL	A	0	F4	EA	3.00	1.000			0.00	00/00/00	99/99/99
16002	LKWSHR #4 HELICAL SPR SS	A	0	F4	EA	2.00	1.000			0.00	00/00/00	99/99/99
16003	LKWSHR #6 HELICAL SPR SS	A	0	F4	EA	8.00	1.000			0.00	00/00/00	99/99/99
16009	LKWSHR #6 INT TOOTH STEEL	A	0	F4	EA	5.00	1.000			0.00	00/00/00	99/99/99
17035	WSHR/KEY KIT FOR 51022	A	0	P2	EA	1.00	1.000			0.00	00/00/00	99/99/99
18014	WSHR FLANGED #6 NYLON	A	0	F4	EA	5.00	1.000			0.00	00/00/00	99/99/99
19087	STDOFF 7/16"X6/32 M-F	A	0	F4	EA	2.00	1.000			0.00	00/00/00	99/99/99
2700011	270 PCB ASBY ECG SELECT	A	0	X1	EA	1.00	1.000			0.00	00/00/00	99/99/99
3700004	370 FUNCTION SWITCH ASBY	F	0	M5	EA	1.00	1.000			0.00	00/00/00	99/99/99
3700008	HOLDER NEON LIGHT	C	0	M2	EA	1.00	1.000			0.00	00/00/00	99/99/99
3700009	PANEL 370 FRONT	I	0	P3	EA	1.00	1.000			0.00	00/00/00	99/99/99
3700015	370 ECG WIRE HARNESS ASBY	A	0	M7	EA	1.00	1.000			0.00	00/00/00	99/99/99
3700018	OVRLY 370 FRONT	E	0	P3	EA	1.00	1.000			0.00	00/00/00	99/99/99
3700034	370 DISPLAY PCB ASBY	E	0	M5	EA	1.00	1.000			0.00	00/00/00	99/99/99
37032	RES .011 OHM 7W	A	0	P2	EA	1.00	1.000			0.00	04/10/87	99/99/99
42018	SOCKET SAFETY LAB BLACK	A	0	P2	EA	2.00	1.000			0.00	00/00/00	99/99/99

BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 762
PANEL ASSEMBLIES
PART: 3700010
DESC: 370 FRONT PANEL ASBY UOM: EA SC: X1 REV: J

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	-OFFSET FIXED	LD TIME-- VARIABLE	EFFECTIV DATE	INACTIVE DATE
42019 J3,4	SOCKET SAFETY LAB RED	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
42025	TERM FORK #8 1814GA INS	B	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
42034	TERM RING #6 22-16 GA INS	D	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42036	TERM RING #6 16-14 GA INS	E	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
42053	TERM FTAB .25 16-14 INS	D	0	F4	EA	5.00	1.000	0	0	0.00	00/00/00	99/99/99
42056	TERM FTAB .25 12-10 INS	C	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42086	TERM FTAB .25 22-18 INS TL1	C	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42213	TERM PIGTAIL 18-8 GA INS NY	B	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
45014	KNOB POINTER 15MM BLUE	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
45032	KNOB CAP W/LINE 21MM BLUE	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
45033	KNOB W/LINE 21MM BLACK	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
45034	KNOB CAP W/LINE 15MM BLUE	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
45035	KNOB W/LINE 15MM BLACK	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
45041	CAP,BLACK, FOR 52016	A	0	P2	EA	1.00	1.000	0	0	0.00	04/10/87	99/99/99
46001	FUSE 1/4A 3AB W/ BOX	A	0	P2	EA	1.00	1.000	0	0	0.00	07/21/87	99/99/99
46016	FUSE HLDR, HI PRO. (SCH.)	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
46017	FUSECARRIER, .25X1.25", (SCH)	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
48042	ADPTR, RETANR, ECG--7770007-DG	A	0	P2	EA	5.00	1.000	0	0	0.00	00/00/00	99/99/99
49018	BRACKET RIGHT ANGLE	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
52024	BUTTON GUARD BLK KNURLED	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
55001 S3	SW TOGGLE SPST 15A	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
55002 S1	SW TOGGLE DPST 6A	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
55003 S4	SW TOGGLE DPDT 3-POS 20A	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99

BILL OF MATERIALS REPORT

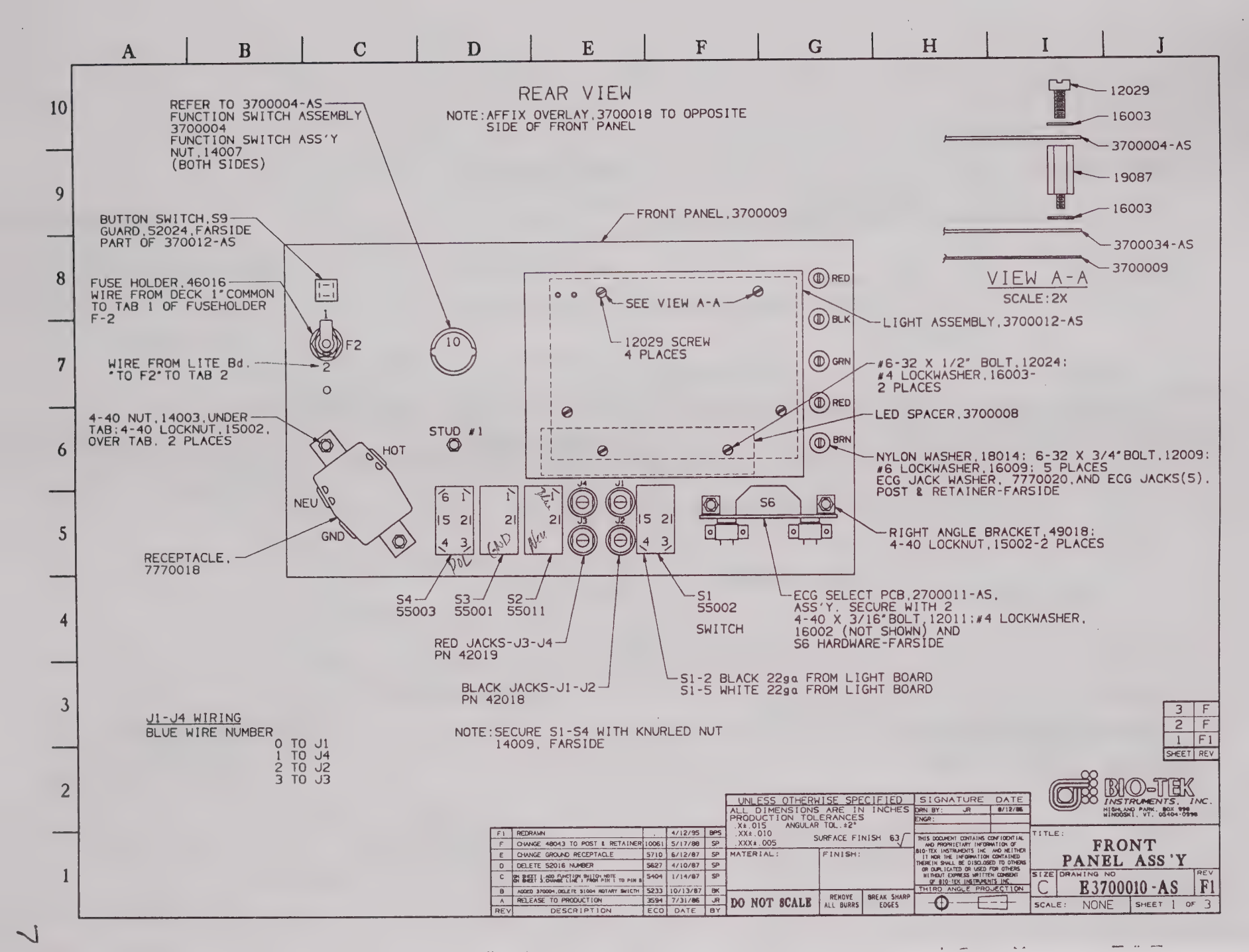
SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 762
PANEL ASSEMBLIES
PART: 3700010
DESC: 370 FRONT PANEL ASBY UOM: EA SC: X1 REV: J

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET LD TIME FIXED	OFFSET LD TIME VARIABLE	EFFECTIV DATE	INACTIVE DATE
55011 S2	SW TOGGLE SPST MOM 15A	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
7770018	RECEPT HOSPITAL 120V 15A	G	0	M2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
7770020	SPACER ECG	E	0	P3	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
7770113	ADPTR ECG POST	B	0	P3	EA	5.00	1.000	0	0	0.00	08/01/88	99/99/99

REAR VIEW

NOTE: AFFIX OVERLAY, 3700018 TO OPPOSITE SIDE OF FRONT PANEL


REFER TO 3700004-AS FUNCTION SWITCH ASSEMBLY 3700004
FUNCTION SWITCH ASS'Y NUT, 14007 (BOTH SIDES)
BUTTON SWITCH, S9 GUARD, 52024, FARSIDE PART OF 370012-AS
FUSE HOLDER, 46016
WIRE FROM DECK 1" COMMON TO TAB 1 OF FUSEHOLDER F-2
WIRE FROM LITE Bd. "TO F2" TO TAB 2
4-40 NUT, 14003, UNDER TAB; 4-40 LOCKNUT, 15002, OVER TAB. 2 PLACES
RECEPTACLE, 7770018
FRONT PANEL, 3700009
SEE VIEW A-A
12029 SCREW 4 PLACES
STUD #1
HOT
NEU
GND
F2
10
RED
BLK
GRN
RED
BRN
LIGHT ASSEMBLY, 3700012-AS
#6-32 X 1/2" BOLT, 12024; #4 LOCKWASHER, 16003- 2 PLACES
LED SPACER, 3700008
NYLON WASHER, 18014; 6-32 X 3/4" BOLT, 12009; #6 LOCKWASHER, 16009; 5 PLACES
ECG JACK WASHER, 7770020, AND ECG JACKS(5). POST & RETAINER-FARSIDE
S6
RIGHT ANGLE BRACKET, 49018; 4-40 LOCKNUT, 15002-2 PLACES
S4 55003
S3 55001
S2 55011
S1 55002 SWITCH
ECG SELECT PCB, 2700011-AS, ASS'Y. SECURE WITH 2 4-40 X 3/16" BOLT, 12011; #4 LOCKWASHER, 16002 (NOT SHOWN) AND S6 HARDWARE-FARSIDE
RED JACKS-J3-J4 PN 42019
BLACK JACKS-J1-J2 PN 42018
S1-2 BLACK 22ga FROM LIGHT BOARD
S1-5 WHITE 22ga FROM LIGHT BOARD

VIEW A-A
SCALE: 2X

J1-J4 WIRING
BLUE WIRE NUMBER
0 TO J1
1 TO J4
2 TO J2
3 TO J3

NOTE: SECURE S1-S4 WITH KNURLED NUT 14009, FARSIDE

3	F
2	F
1	F1
SHEET	REV

REV	DESCRIPTION	ECO	DATE	BY
F1	REDRAWN	.	4/12/95	BPS
F	CHANGE 48043 TO POST & RETAINER	10061	5/17/88	SP
E	CHANGE GROUND RECEPTACLE	5710	6/12/87	SP
D	DELETE S2016 NUMBER	5627	4/10/87	SP
C	ON SHEET 1, ADD FUNCTION SWITCH NOTE ON SHEET 3, CHANGE LINE 1 FROM PIN 1 TO PIN 8	5404	1/14/87	SP
B	ADDED 370004, DELETE 31004 ROTARY SWITCH	5233	10/13/87	BK
A	RELEASE TO PRODUCTION	3594	7/31/86	JR

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
PRODUCTION TOLERANCES
.X± .015 ANGULAR TOL. ±2°
.XX± .010
.XXX± .005
SURFACE FINISH 63

SIGNATURE	DATE
DRN BY: JR	8/12/86
ENGR:	

MATERIAL: FINISH:

DO NOT SCALE | REMOVE ALL BURRS | BREAK SHARP EDGES

THIRD ANGLE PROJECTION

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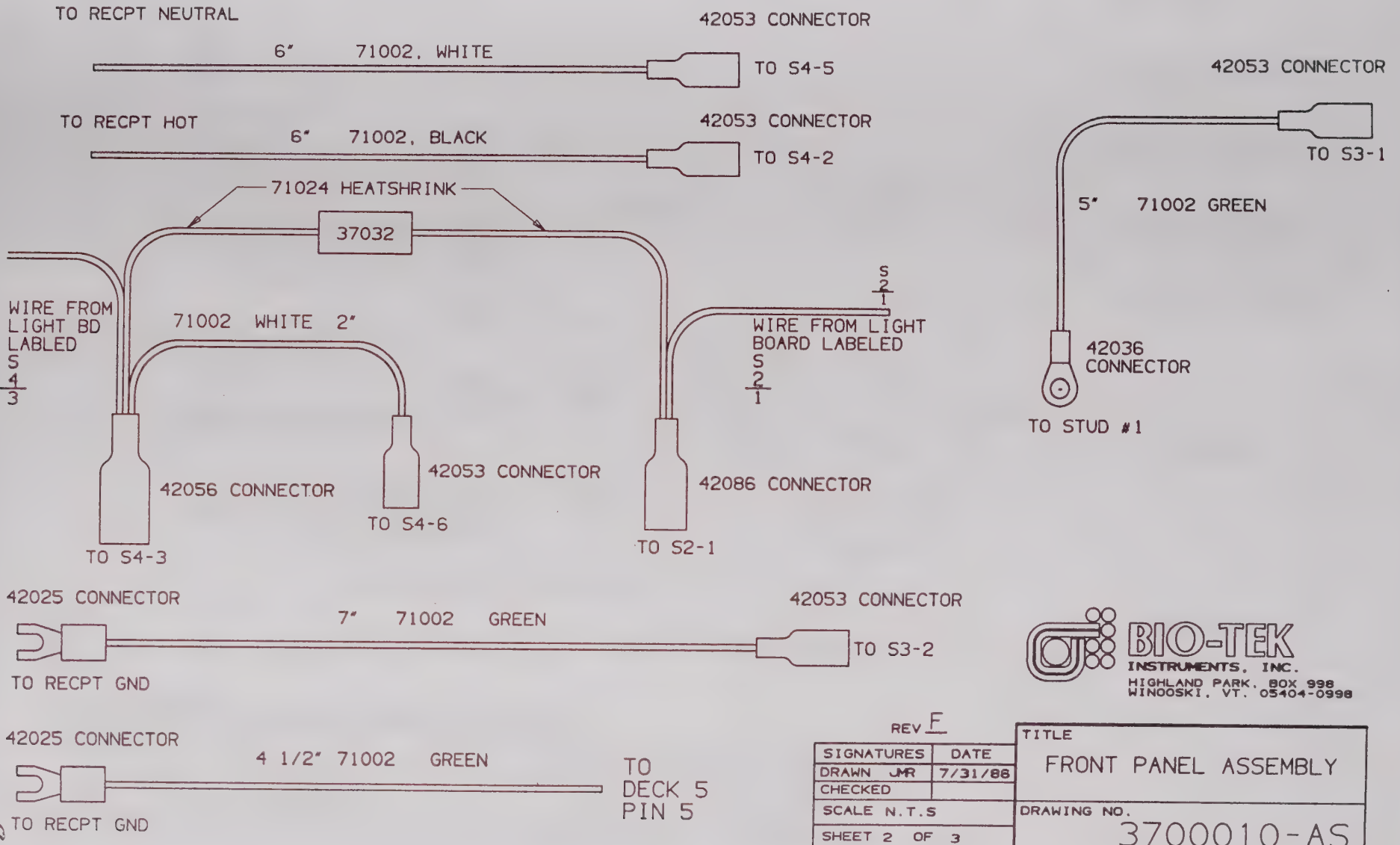
BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

TITLE: FRONT PANEL ASS'Y

SIZE	DRAWING NO	REV
C	E3700010-AS	F1

SCALE: NONE SHEET 1 OF 3



BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

REV F

SIGNATURES	DATE
DRAWN JMR	7/31/86
CHECKED	
SCALE N.T.S	
SHEET 2 OF 3	

TITLE
FRONT PANEL ASSEMBLY

DRAWING NO.
3700010-AS

1. 14GA GREEN WIRE FROM DECK 5 PIN 5 TO RECEPTACLE GND

2. SOLDER WIRE FROM DECK 1 COMMON TO TAB 1 OF F2

3. ATTACH WIRES FROM LIGHT PCB "H AND N" HOLES TO RECEPTACLE HOT AND NEUTRAL

4. PLUG WHITE WIRE FROM LIGHT PCB (JUST ABOVE P1 HOLE 1) INTO S1-5

5. PLUG BLACK WIRE FROM LIGHT PCB (JUST ABOVE P1 HOLE 2) INTO S1-2

6. PLUG P4 FROM LIGHT PCB TO ECG PCB

7. PLUG ECG WIRE HARNESS TO ECG PCB

8. ATTACH GREEN WIRE FROM LIGHT PCB HOLE G TO STUD #1

BIO-TEK
INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

REV E

SIGNATURES	
DRAWN JMR	7/31/86
CHECKED	
SCALE NONE	
SHEET 3 OF 3	

TITLE
FRONT PANEL ASSEMBLY

DRAWING NO.
3700010-AS

BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 761
PCB ASSEMBLIES
PART: 3700012
DESC: 370 LIGHT ASBY UOM: EA SC: X1 REV: L

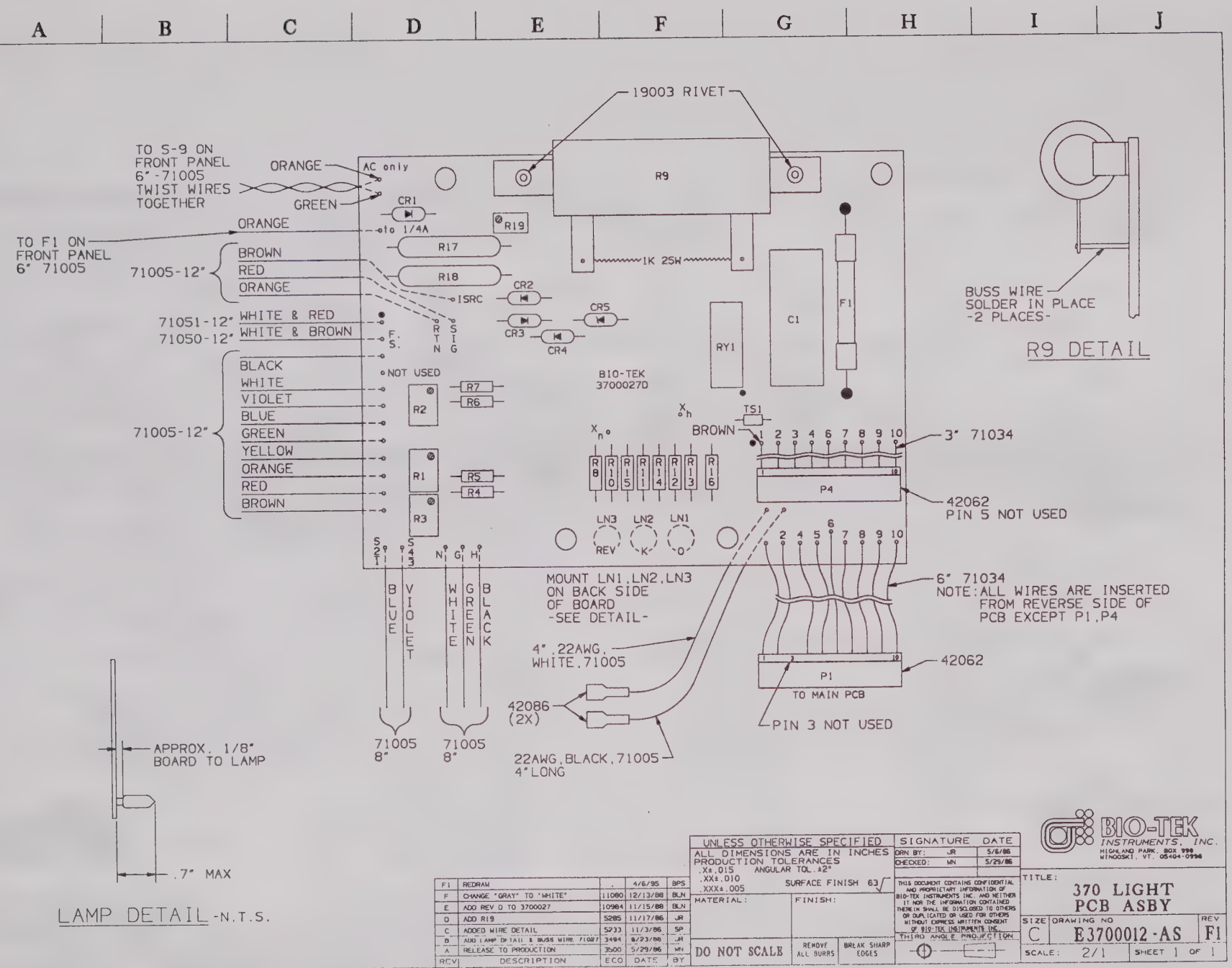
COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET FIXED	LD TIME VARIABLE	EFFECTIV DATE	INACTIVE DATE
01010 LNI-3	NEON LIGHT 70 VOLT	B	0	P2	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
19003	RIVET POP 1/8D .060-.125G	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
21003 CR3,4	DIODE 1N4004 1A 200V	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
21004 CR1	DIODE 1N4148 SIGNAL	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
21008 CR2	DIODE 1N4006	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
22022 CR5	DIODE 1N968B ZENER 20V	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
28016 TS1	VARISTOR	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
31000 R8	RES 0 OHM 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
31304 R13-15	RES 300.0K OHM 5% 1/4W	A	0	F4	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
31331 R16	RES 330.0 OHM 5% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32052 R10,11,12	RES 2.00M OHM 1% 1/4W	A	0	F4	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
32237 R4-7	RES 487K OHM 1% 1/4W	A	8	F4	EA	4.00	1.000	0	0	0.00	02/16/88	99/99/99
33052 R17,18	RES 15.0 OHM 5% 5W WW	B	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
33057 R9	RESISTOR 1K 1% NI	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
35011 R1-2	TRIMPOT 50K, 25T	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
35021 R3,19	TRIMPOT 20 OHM, 25T	B	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
3700027 REV C	PCB 370 LED	D	0	P4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42062 P1,4	INDS 10-S .156 22GA	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
42086	TERM FTAB .25 22-18 INS TL1	C	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
46033 F1	FUSE .125A PIGTAIL	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
49014	TERM PCB	B	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
49338	CLIP RESISTOR PCB MOUNT	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
52016	SW PB SPST	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99

BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 761
PCB ASSEMBLIES
PART: 3700012
DESC: 370 LIGHT ASBY UOM: EA SC: X1 REV: L

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET FIXED	OFFSET VARIABLE	LD TIME	EFFECTIV DATE	INACTIVE DATE
62008	RELAY SPDT 1AMP 12V COIL	A	0	P2	EA	1.00	1.000	0	0	0.00	0.00	00/00/00	99/99/99
RY1													
71005	WIRE HOOK-UP 22 AWG	A	11	F4	FT	2.60	1.000	0	0	0.00	0.00	12/13/88	99/99/99
BROWN													
71005	WIRE HOOK-UP 22 AWG	A	12	F4	FT	2.60	1.000	0	0	0.00	0.00	12/13/88	99/99/99
RED													
71005	WIRE HOOK-UP 22 AWG	A	13	F4	FT	3.60	1.000	0	0	0.00	0.00	12/13/88	99/99/99
ORANGE													
71005	WIRE HOOK-UP 22 AWG	A	14	F4	FT	1.00	1.000	0	0	0.00	0.00	12/13/88	99/99/99
YELLOW													
71005	WIRE HOOK-UP 22 AWG	A	15	F4	FT	2.10	1.000	0	0	0.00	0.00	12/13/88	99/99/99
GREEN													
71005	WIRE HOOK-UP 22 AWG	A	16	F4	FT	1.75	1.000	0	0	0.00	0.00	12/13/88	99/99/99
BLUE													
71005	WIRE HOOK-UP 22 AWG	A	17	F4	FT	1.75	1.000	0	0	0.00	0.00	12/13/88	99/99/99
VIOLET													
71005	WIRE HOOK-UP 22 AWG	A	18	F4	FT	1.75	1.000	0	0	0.00	0.00	12/13/88	99/99/99
WHITE													
71005	WIRE HOOK-UP 22 AWG	A	19	F4	FT	2.00	1.000	0	0	0.00	0.00	12/13/88	99/99/99
BLACK													
71027	WIRE BUS 20 AWG	A	10	F4	FT	0.16	1.000	0	0	0.00	0.00	12/13/88	99/99/99
2"													
71034	CABLE RIBBON 10-COND 22 AWG	A	20	F4	FT	0.75	1.000	0	0	0.00	0.00	12/13/88	99/99/99
9.0"													
71050	WIRE HOOK UP 22AWG W/BRN	A	0	F4	FT	1.00	1.000	0	0	0.00	0.00	00/00/00	99/99/99
WHITE AND BROWN													
71051	WIRE HOOK UP 22AWG W/RED	A	0	F4	FT	1.00	1.000	0	0	0.00	0.00	00/00/00	99/99/99
WHITE AND RED													
84014	CAP 1 uF 400V POLY	A	9	P2	EA	1.00	1.000	0	0	0.00	0.00	02/16/88	99/99/99
C1													



REV	DESCRIPTION	ECO	DATE	BY
F1	REDRAW	.	4/6/95	BPS
F	CHANGE "GRAY" TO "WHITE"	11080	12/13/88	BLN
E	ADD REV D TO 3700027	10984	11/15/88	BLN
D	ADD R19	5285	11/17/86	JR
C	ADDED WIRE DETAIL	5233	11/3/86	SP
B	ADD LAMP DETAIL & BUSS WIRE 71027	3494	8/23/86	JR
A	RELEASE TO PRODUCTION	3500	5/29/86	MN

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
PRODUCTION TOLERANCES
.X ± .015 ANGULAR TOL. ± 2°
.XX ± .010
.XXX ± .005
SURFACE FINISH 63
MATERIAL:
FINISH:
DO NOT SCALE
REMOVE ALL BURRS
BREAK SHARP EDGES

SIGNATURE	DATE
DRN BY: JR	5/6/86
CHECKED: MN	5/29/86

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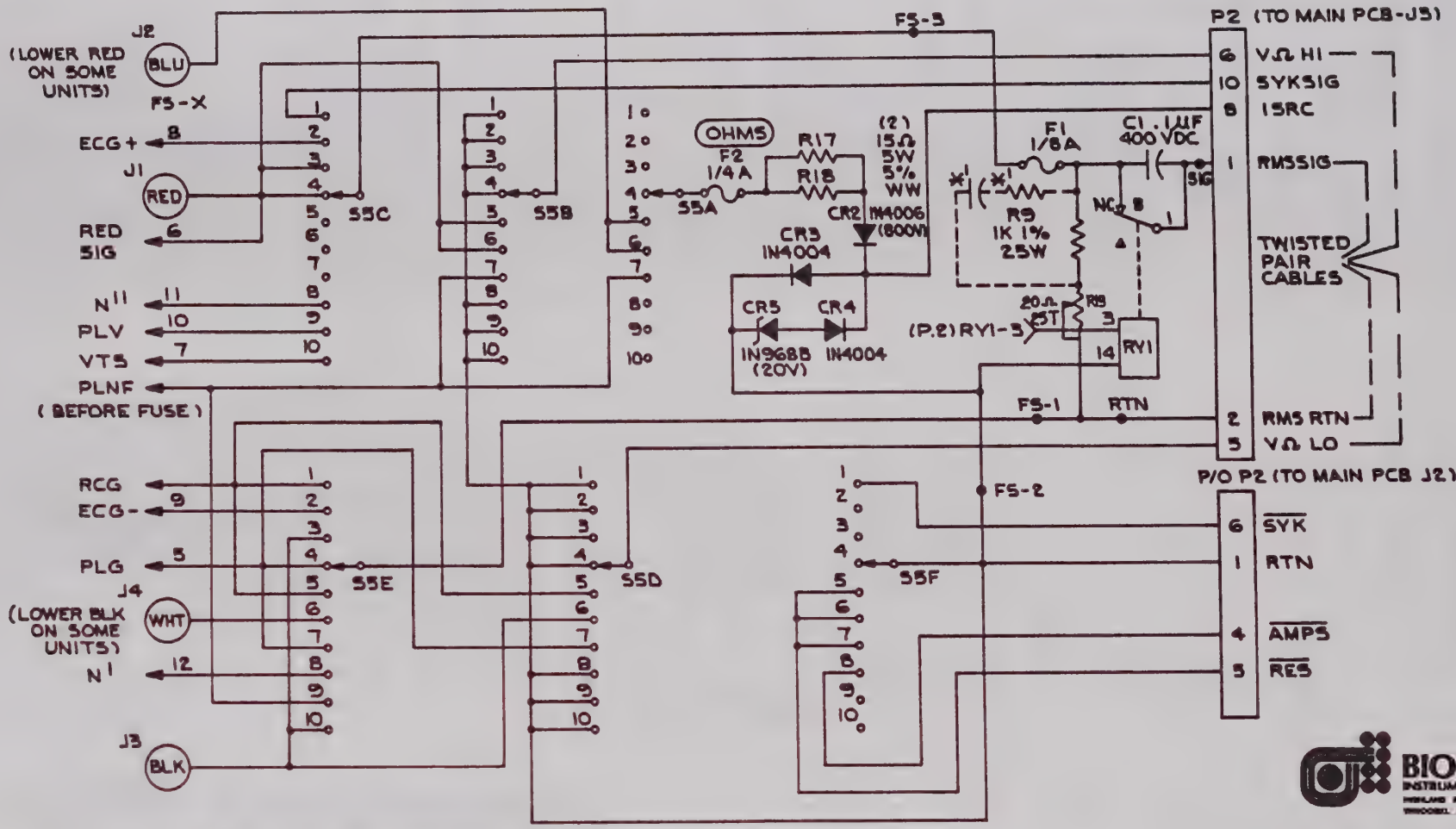
THIRD ANGLE PROJECTION

BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

TITLE:
370 LIGHT
PCB ASBY

SIZE	DRAWING NO	REV
C	E3700012-AS	F1

SCALE: 2/1 SHEET 1 OF 1



*' LAYOUT FOR OLD AAMI LOAD COMPONENTS

55 = GRAYHILL 42A 56-06-01-ION
OR 5,UA,US

FS = PCB CONNECTIONS TO 55

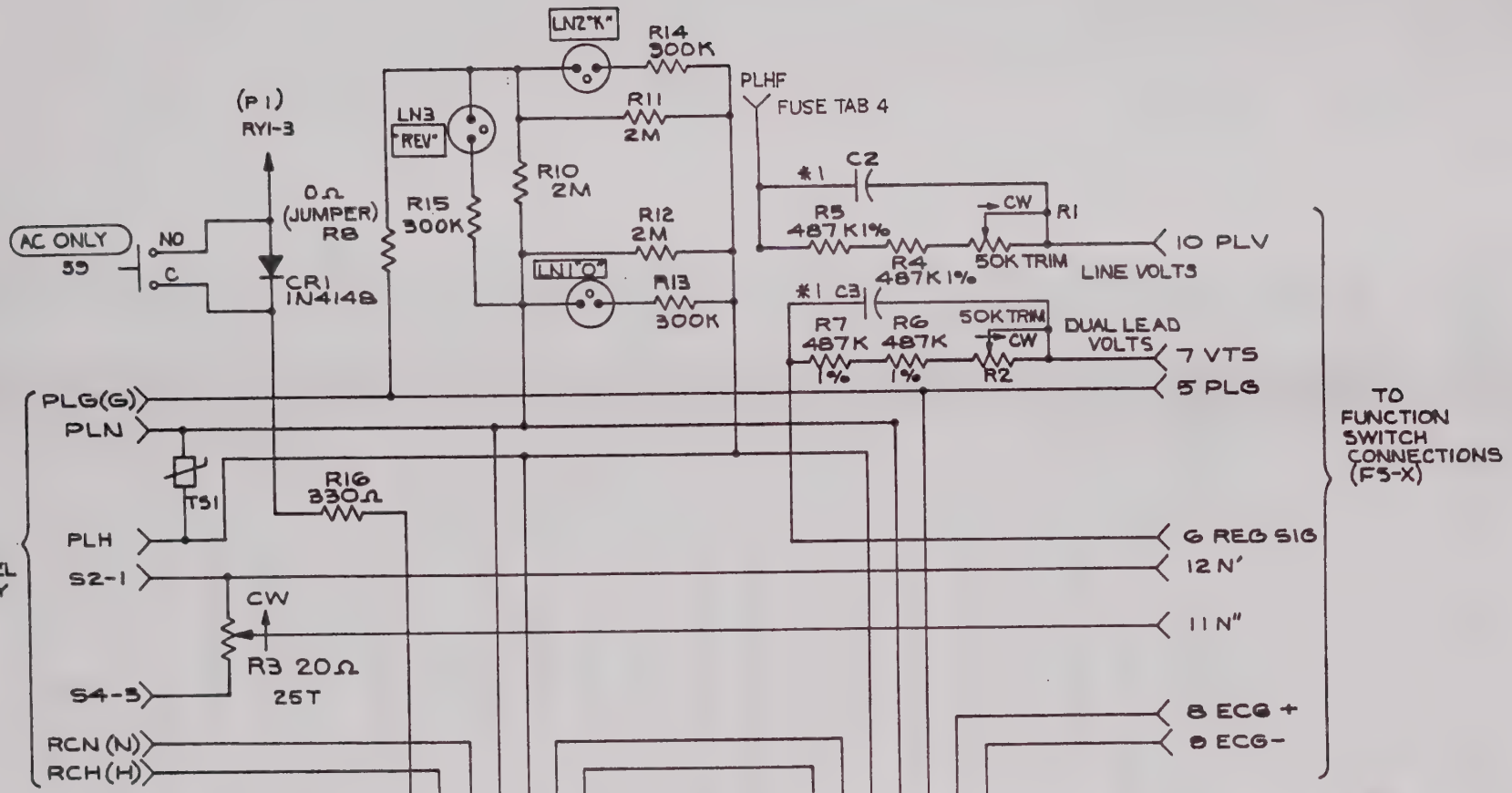
REV	DESCRIPTION	ECO	DATE	BY
C	ADD R19	5285	11-12-86	JK
B	PLN WAS AFTER FUSE; PLNF ADDED	5164	10-7-86	BEK
A	RELEASE TO PRODUCTION	3500	5-30-86	

APPROVALS	DATE
DRAWN TAD tk	4-26-86
CHECKED	5-[illegible]-86

SCHEMATIC, MODEL 370-LIGHT BOARD & FUNCTION SWITCH ASSEMBLY

SCALE NONE | SHEET 1 | DRAWING NO. 3700012-SC

BIO-TEK INSTRUMENTS, INC.



*1- FOR OLD AAMI LOAD ONLY
C2=C3=150 pf 1KV Cer

BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 900
WINOOSKI, VT. 05404-0900

	REV C	SCHEMATIC, MODEL 370 -LIGHT BOARD & FUNCTION SWITCH ASSEMBLY
APPROVALS	DATE	
DRAWN TAD & K	4-26-86	SCALE NONE
CHECKED K N	5-20-86	SHEET 1
		DRAWING NO. 3700012-SC

H1

E1

BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 761
PCB ASSEMBLIES
PART: 3700013
DESC: 370 (N AMER) MAIN PCB ASBY UOM: EA SC: M5 REV: H

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	-OFFSET LD TIME-- FIXED	VARIABLE	EFFECTIV DATE	INACTIVE DATE
12004 [Q2,3]	SCR PAN 4-40X1/4 SS SLOT	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
15002 [Q2,3]	LOCKNUT 4-40 STEEL	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
21003 CR16-21	DIODE 1N4004 1A 200V	A	0	F4	EA	6.00	1.000	0	0	0.00	00/00/00	99/99/99
21004 CR22,1,2,11-15	DIODE 1N4148 SIGNAL	A	0	F4	EA	8.00	1.000	0	0	0.00	00/00/00	99/99/99
22017 CR7-10	DIODE 1N5231B ZENER 5.1V	A	0	P2	EA	4.00	1.000	0	0	0.00	00/00/00	99/99/99
22033 CR23	DIODE IN5253B ZENER 25V	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
23021 [Q2]	VOLT REG +ADJ 1.5A 317	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
23022 [Q3]	VOLT REG -ADJ .5A 337	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
23027 U20	OP AMP 358 DUAL	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
23043 U17-19	OP AMP 07E	A	0	P2	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
23044 U14	OP AMP LM158 AH	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
23045 U12	OP AMP AD518KN	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
23046 U11	OP AMP AD381KH	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
25006 U1	IC 4433 DIG A/D CONVERTER	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
25008 U2,3	IC 4013 FLIP-FLOP DUAL	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
25011 U4,5	IC 4023 NAND 3-IN TRIPLE	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
25012 U7	IC 4069 HEX INVERTER	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
25021 U8,9	IC 4011 NAND 2-IN QUAD	C	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
25023 U6	IC 4027 J-K FLIP-FLOP DL	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
25033 U10	IC 74HC4049 HEX INVERT BUFFER	C	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
25113 U13	IC AD637JQ RMS-TO-DC CONV	A	0	P2	EA	1.00	1.000	0	0	0.00	12/14/93	99/99/99
27007 Q1	TRANSISTOR VN0606M MOSFET	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
28004 U16,21	VOLT REF 2.5	B	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99

BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 761
PCB ASSEMBLIES
PART: 3700013
DESC: 370 (N AMER) MAIN PCB ASBY UOM: EA SC: M5 REV: H

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	-OFFSET FIXED	LD TIME-- VARIABLE	EFFECTIV DATE	INACTIVE DATE
29046 U15	IC AD7510	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
31000 R70	RES 0 OHM 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
31106 R46,51,54,58	RES 10.0M OHM 5% 1/4W	A	0	F4	EA	4.00	1.000	0	0	0.00	00/00/00	99/99/99
31304 R45	RES 300.0K OHM 5% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
31331 R44	RES 330.0 OHM 5% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
31391 R52,59	RES 390.0 OHM 5% 1/4W	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
31683 R42,43	RES 68.0K OHM 5% 1/4W	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
32030 R2,49,56	RES 100.0K OHM 1% 1/4W	A	0	F4	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
32035 R67	RES 301.0K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32039 R47,48,53,55,72	RES 1.00M OHM 1% 1/4W	A	0	F4	EA	5.00	1.000	0	0	0.00	09/20/88	99/99/99
32042 R17-19,50,57	RES 10.00K OHM 1% 1/4W	A	0	F4	EA	5.00	1.000	0	0	0.00	09/20/88	99/99/99
32044 R25,26,40,73,74	RES 20.00K OHM 1% 1/4W	A	1	F4	EA	5.00	1.000	0	0	0.00	09/20/88	99/99/99
32045 R8	RES 24.90K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32047 R3	RES 1.000K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32048 R4,38	RES 51.10K OHM 1% 1/4W	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
32060 R15,16	RES 24.30K OHM 1% 1/4W	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
32100 R62,65	RES 100.00 OHM 1% 1/4W	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
32112 R34	RES 2.00K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32120 R20,21,22	RES 75.00 OHM 1% 1/4W	A	0	F4	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
32122 R11	RES 226.00 OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32152 R27,28	RES 150.00 OHM 1% 1/4W	A	0	F4	EA	2.00	1.000	0	0	0.00	09/20/88	99/99/99
32172 R5	RES 1.40K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32175 R37	RES 124.00K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99

BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER

AS OF 03/20/95

CLASS CODE: 761
PCB ASSEMBLIES
PART: 3700013
DESC: 370 (N AMER) MAIN PCB ASBY UOM: EA SC: M5 REV: H

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET LD TIME FIXED	OFFSET LD TIME VARIABLE	EFFECTIV DATE	INACTIVE DATE
32182 R64,63	RES 511.00 OHM 1% 1/4W	A	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
32190 R71	RES 200.00K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	09/20/88	99/99/99
32232 R23	RES 200.00OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32238 R36	RES 3.4K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32239 R66	RES 332K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32240 R9	RES 2.55K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
32242 R13	RES 3.16K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
33018 R1	RES 100.00K OHM 1% 1W	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
35008 R7,60,61	TRIMPOT 10K, 25T	A	0	P2	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
35009 R33,41	TRIMPOT 20K, 25T	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
35011 R69	TRIMPOT 50K, 25T	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
35012 R35,39	TRIMPOT 1K, 25T	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
35017 R6	TRIMPOT 200 OHM, 25T	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
35018 R12	TRIMPOT 100 OHM, 25T	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
35019 R24	TRIMPOT 50 OHM, 25T	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
35024 R10	TRIMPOT 500 OHM, 25T	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
35025 R14	TRIMPOT 200K, 25T	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
3700025	PCB 370 MAIN	C	0	P4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
37031 R29-32	RES 100K OHM .1% 1W	A	0	P2	EA	4.00	1.000	0	0	0.00	00/00/00	99/99/99
42039 J1	HEDR 10-P .156 LOK	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42096 J5	HEDR 3-P .100 GOLD	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42113 P5	JUMPER FOR BERG HEDRS	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42130 J3	HEDR 10-P .100 LOK GOLD	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99

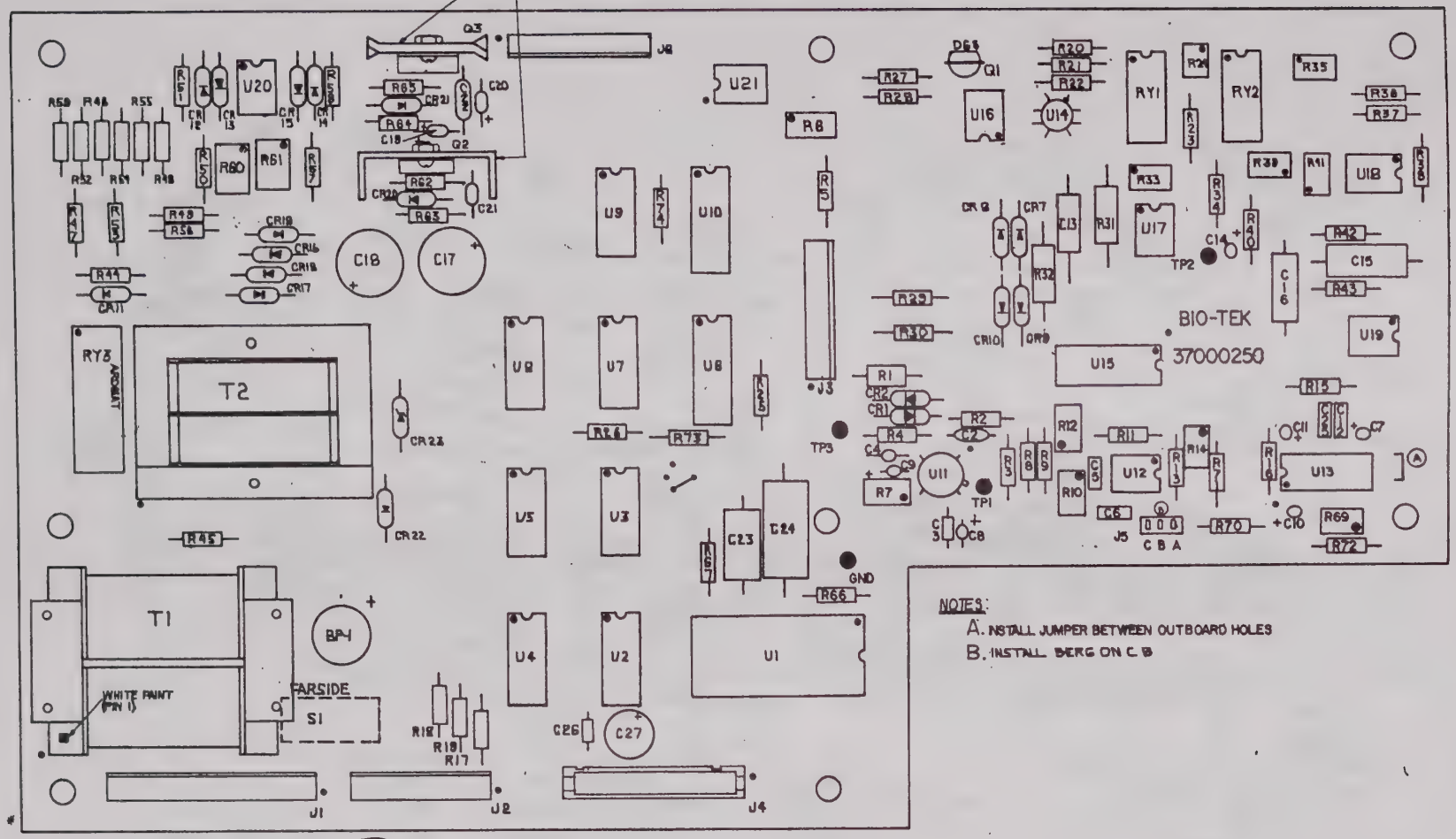
BILL OF MATERIALS REPORT

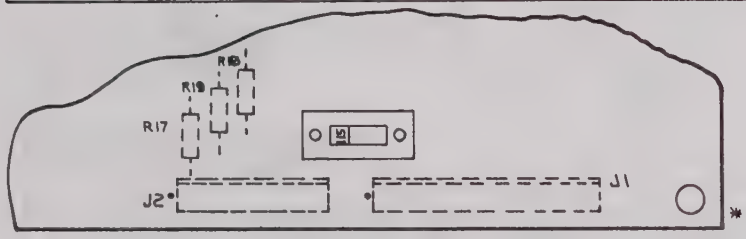
SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 761
PCB ASSEMBLIES
PART: 3700013
DESC: 370 (N AMER) MAIN PCB ASBY UOM: EA SC: M5 REV: H

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET LD TIME-- FIXED	VARIABLE	EFFECTIV DATE	INACTIVE DATE
42196 J4	HEDR 26-P 4-WALL STRT	A	0	P2	EA	1.00	1.000	0	0	0.00	12/08/87	99/99/99
42197 J2,6	HEDR 10-P .100 LOK	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
49014 T.P.	TERM PCB	B	0	F4	EA	4.00	1.000	0	0	0.00	00/00/00	99/99/99
49043 [Q2]	HEATSINK BLK TINNED TABS	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
49090 [Q3]	HEATSINK PC MOUNT TO-220	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
53007 [S1]	SW SLIDE DPDT	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
61002 [T2]	TRANSF 115/230 24V-CT	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
61004 [T1]	TRANSF ISOL ALL V	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
62003 RY3	RELAY 4PST	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
62004 RY1,2	RELAY 5V 1A REED	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
65020 [BP1]	BUZZER 3-16V PIEZO	C	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
81007 C27	CAP 100 uF 16V ELEC	D	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
81009 C17,18	CAP 1000uF 25V ELEC	C	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
82003 C8,9,14	CAP 10 uF 25V TANT	C	0	P2	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
82004 C19,20	CAP 22 uF 15V TANT	C	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
82005 C7	CAP 1uF 35V TANT	D	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
82006 C10,11	CAP 2.2 uF 35V TANT	B	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
83019 C22,25,26,C3-6,12,21	CAP .1 uF 100V DISC	G	0	F4	EA	9.00	1.000	0	0	0.00	00/00/00	99/99/99
84002 C23	CAP .1 uF 100V FILM	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
84009 C13,15	CAP 1 uF 100V FILM	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
84010 [C16]	CAP .68 uF 35V MYLR	C	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
84019 C24	CAP .1uF MYLAR	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
85020 C2	CAPACITATOR, 1500 PF 1% 50V	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99

Q2+Q3: BOLT TO HEATSINK (APPLY THIN FILM OF HEATSINK PASTE)
INSERT HEATSINK–REGULATOR COMBINATIONS INTO BOARD
AFTER ALL OTHER COMPONENTS HAVE BEEN MOUNTED





REARVIEW

BIO-TEK INSTRUMENTS, INC.

REV	DESCRIPTION	ECO	DATE	BY
C	Add diode symbols	5257	11/17/86	GP
B	ADD BERG NOTE, REMOVE ASSEMBLY	5142	9-29-86	JR
A	RELEASE TO PRODUCTION	3500	5-29-86	WN

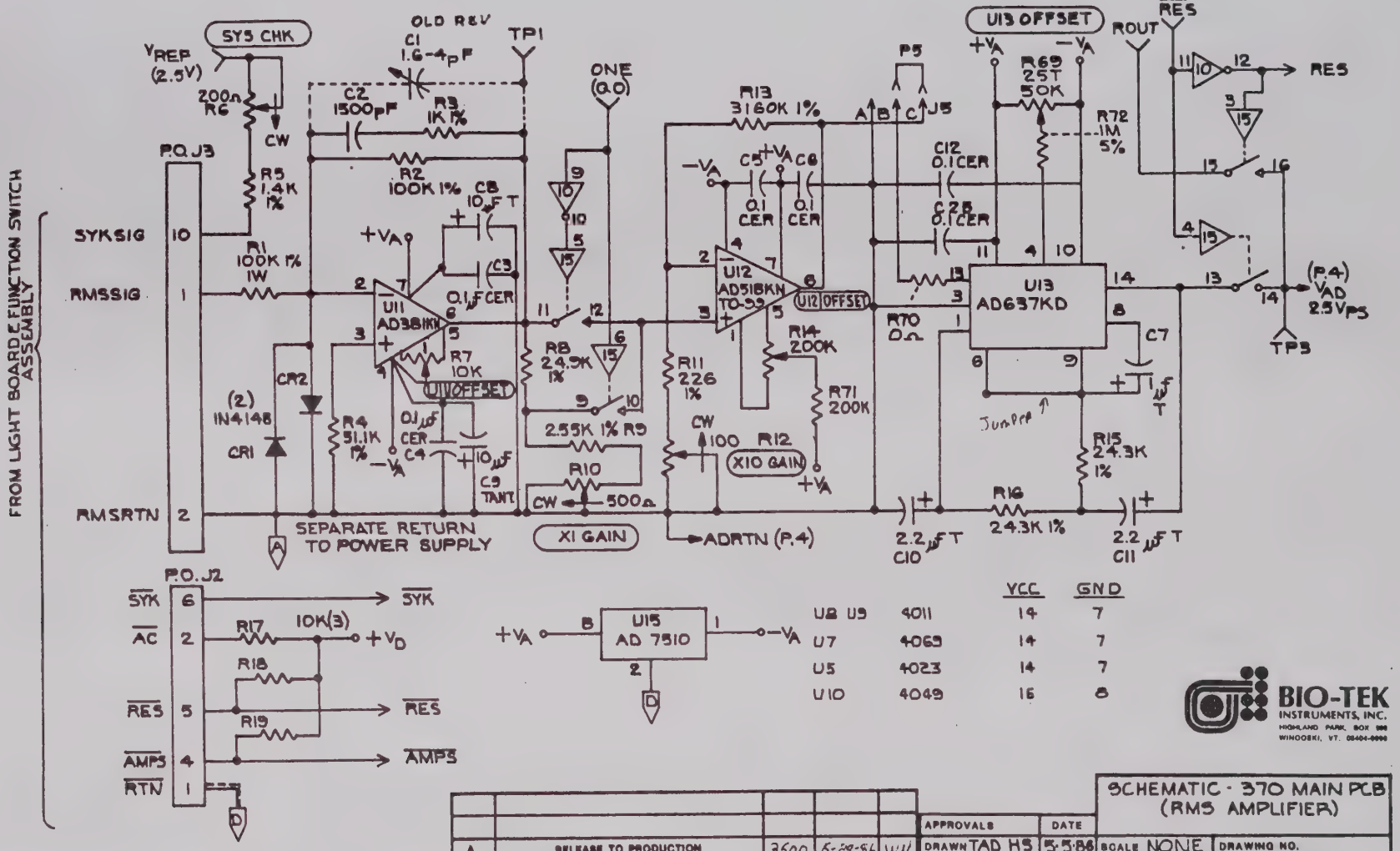
APPROVALS	DATE
DRAWN JR	5/29/86
CHECKED WN	5/29/86

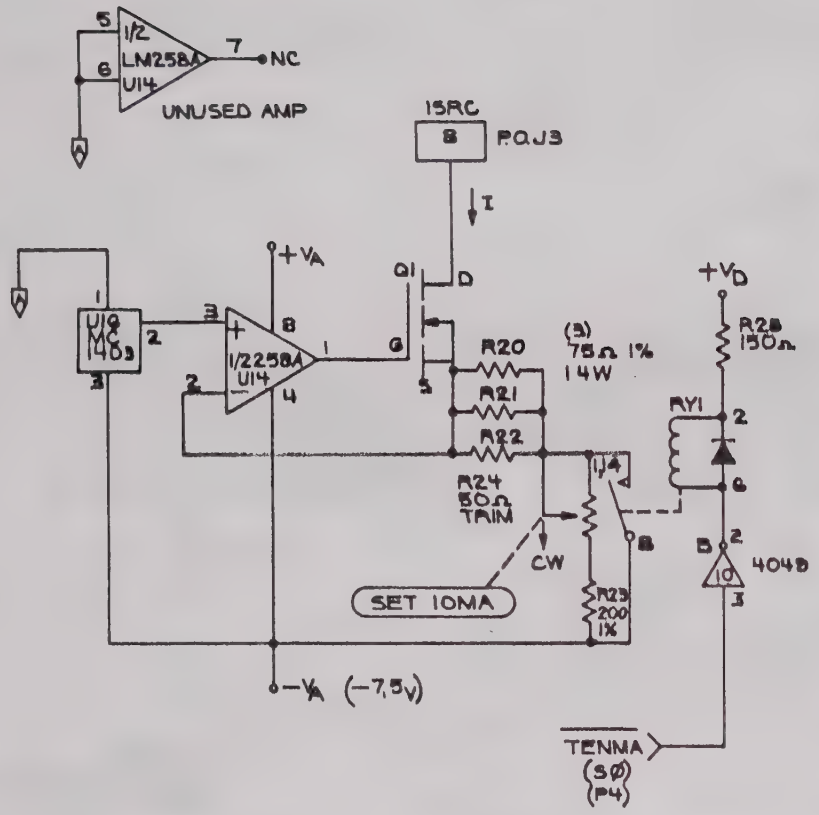
370 MAIN PCB ASSY

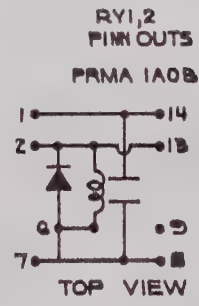
SCALE 2X

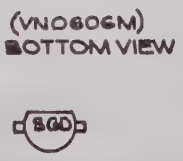
DRAWING NO. 37000013-AS

SHEET 1 of 1


FROM LIGHT BOARD E FUNCTION SWITCH ASSEMBLY
SYS CHK
VREF (2.5V)
200Ω RG
CW
R5 1.4K 1%
OLD R&V
C1 1.6-4pF
TP1
C2 1500pF
R3 1K 1%
R2 100K 1%
C8 10µF T
P.O. J3
SYKSIG 10
RMSSIG 1
RMSRTN 2
R1 100K 1% 1W
+VA
C3 0.1µF CER
U11 AD381KN
R7 10K
U11 OFFSET
CR2
(2) IN4148
CR1
R4 51.1K 1%
C4 .01µF CER
C9 10µF TANT
-VA
SEPARATE RETURN TO POWER SUPPLY
A
ONE (Q.0)
R8 24.9K 1%
2.55K 1% R9
R10 CW 500Ω
XI GAIN
R11 226 1%
CW 100 R12 X10 GAIN
R13 316OK 1%
R14 200K
R71 200K
U12 AD518KN TO-99
U12 OFFSET
C5 0.1 CER
C6 0.1 CER
ADRTN (P.4)
P5
A B C J5
U13 OFFSET
+VA -VA
R69 25T 50K
R72 1M 5%
C12 0.1CER
C28 0.1CER
ROUT
RES
U13 AD637KD
R70 0Ω
C7 1µF T
Jumper
R15 24.3K 1%
R16 24.3K 1%
2.2µF T C10
2.2µF T C11
(P.4) VAD 2.5VPS
TP3
P.O. J2
SYK 6
AC 2
RES 5
AMPS 4
RTN 1
R17 10K(3)
+VD
R18
R19
U15 AD 7510
B 1 2 D
U8 U9 4011 14 7
U7 4069 14 7
U5 4023 14 7
U10 4049 16 8
BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 000
WINOOSKI, VT. 05404-0000
SCHEMATIC - 370 MAIN PCB (RMS AMPLIFIER)
APPROVALS DATE
DRAWN TAD HS 5-5-86
CHECKED WN
SCALE NONE
SHEET 1 OF 6
DRAWING NO. 3700013-SC
REV DESCRIPTION ECO DATE BY
A RELEASE TO PRODUCTION 3500 6-29-86 WN

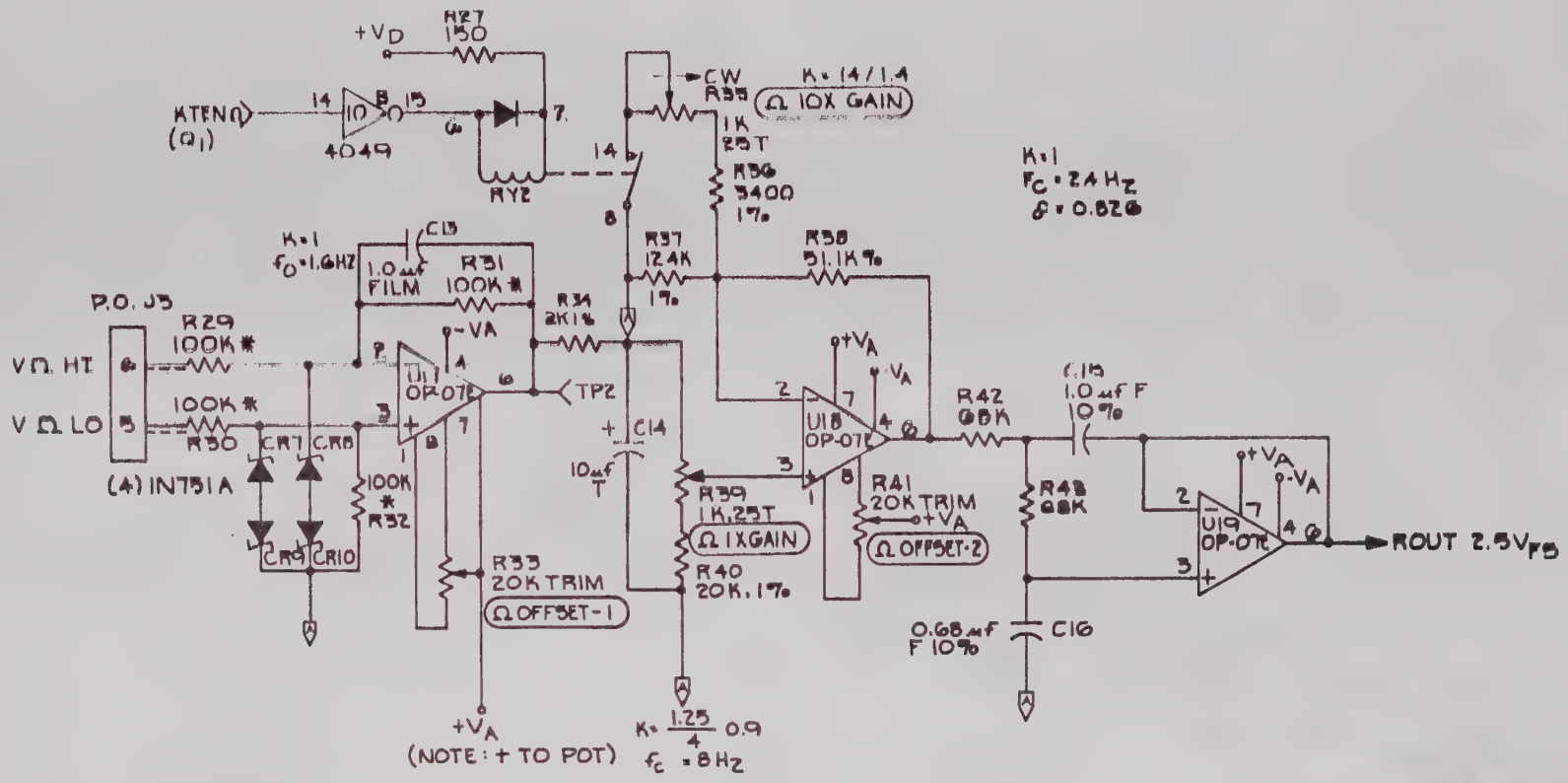






BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 906
WINOOSKI, VT. 05404-0906

370 MAIN PC BOARD (CURRENT SOURCE)			
APPROVALS	DATE		
DRAWN TAD JL	5-5-88	SCALE NONE	DRAWING NO. 3700013-SC
CHECKED WN		SHEET 2 OF 6	

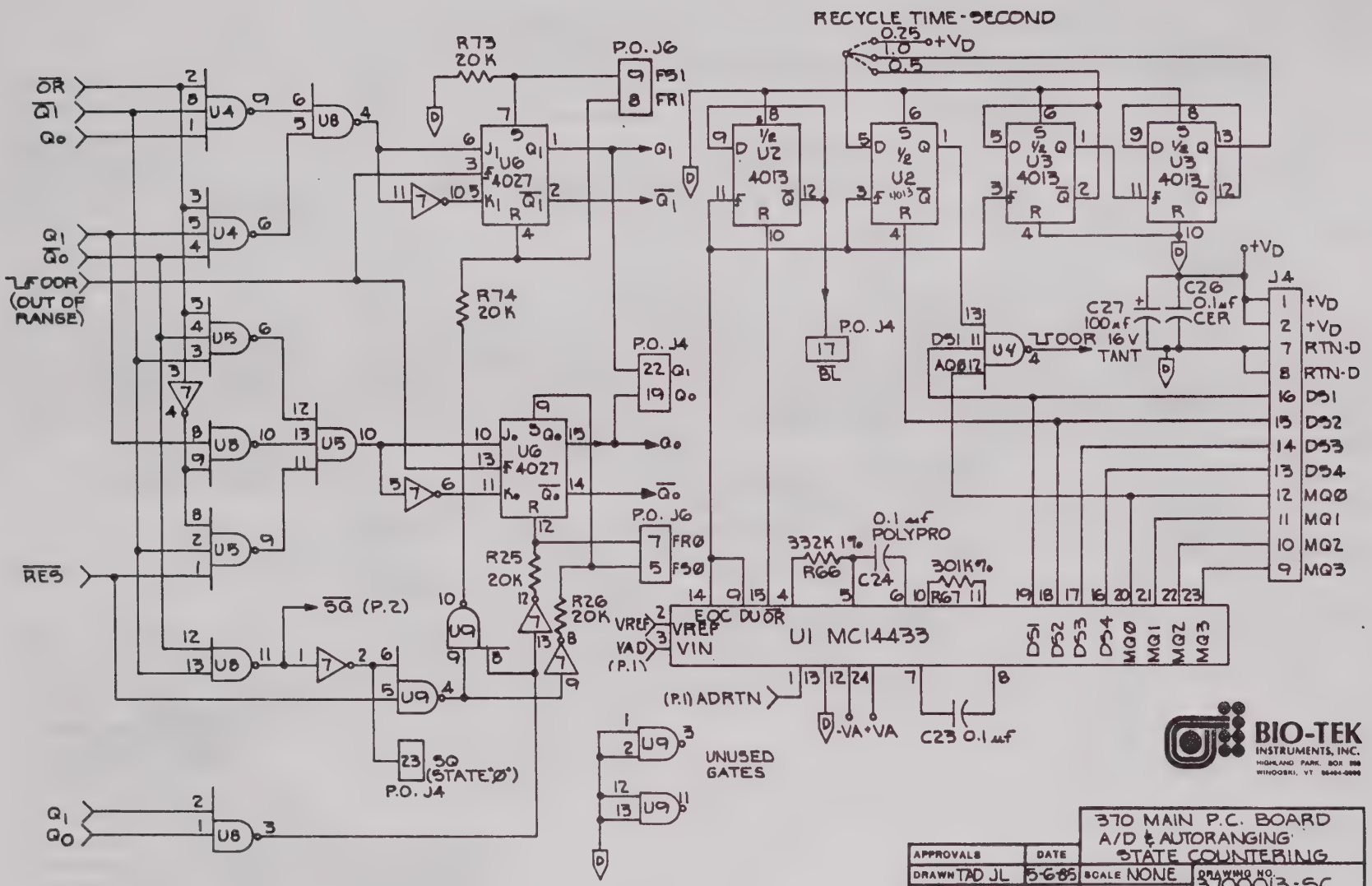


LAYOUT FOR DIP STYLE OP-AMPS
* 100K 0.1% METAL FILM - 1W

RNG5C1003B
(E)
(F)

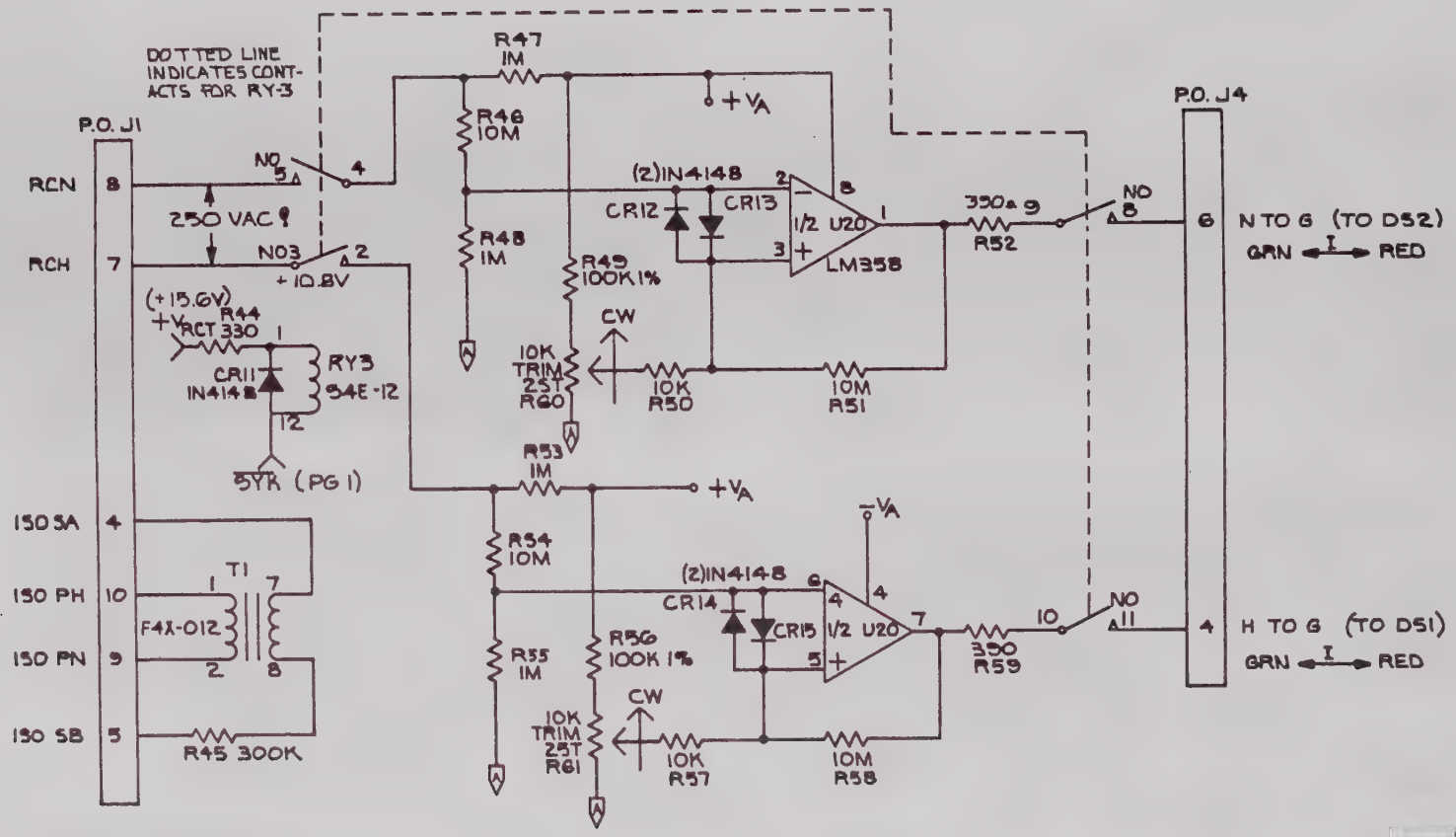
BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 000
WINOOSKI, VT. 05404-0000

		370 MAIN PC BOARD (OHMS AMP)	
APPROVALS	DATE		
DRAWN TAD JL	5-5-86	SCALE NONE	DRAWING NO. 3700013-5C
CHECKED WN		SHEET 30F6	



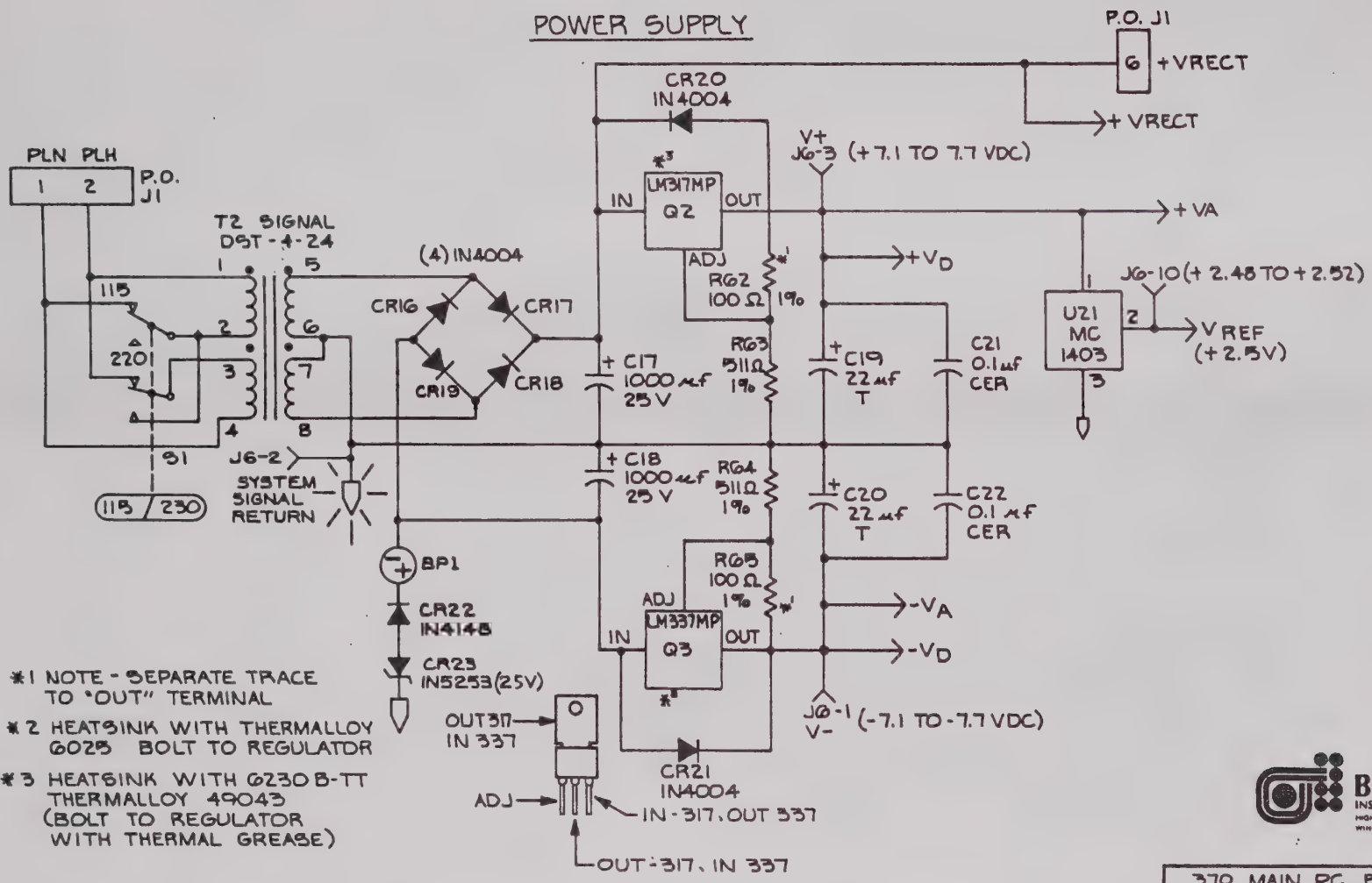
BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX
WINOOSKI, VT

370 MAIN P.C. BOARD A/D & AUTORANGING STATE COUNTERING		
APPROVALS	DATE	
DRAWN TAD JL	5-6-85	SCALE NONE
CHECKED WN		SHEET 4 OF 6
		DRAWING NO. 3700013-SC



BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 000
WINOOSKI, VT 00000-0000

		370 MAIN PC BOARD (INSULATION TEST CKT)	
APPROVALS	DATE		
DRAWN TAD JL	5-3-86	SCALE NONE	DRAWING NO. 3700013-5C
CHECKED WN		SHEET 5 OF 6	



BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK BOX 188 WINOOSKI, VT. 05404-0188

370 MAIN PC BOARD POWER SUPPLY			
APPROVALS	DATE		
DRAWN TAD JL	5-5-86	SCALE NONE	DRAWING NO. 3700013-5C
CHECKED WN		SHEET 6 OF 6	

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BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

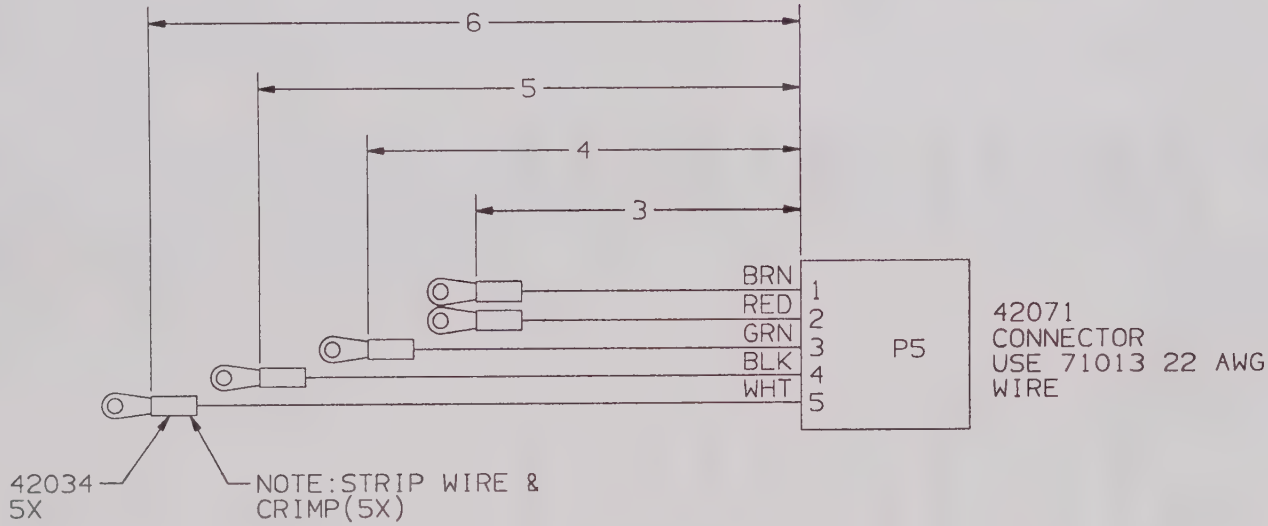
CLASS CODE: 715
CABLE ASSEMBLIES
PART: 3700014
DESC: 370 PANEL HARNESS ASBY UOM: EA SC: M7 REV: D

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	-OFFSET LD TIME- FIXED	VARIABLE	EFFECTIV DATE	INACTIVE DATE
37032 R1	RES .011 OHM 7W	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42025	TERM FORK #8 1814GA INS	B	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42034	TERM RING #6 22-16 GA INS	D	0	F4	EA	5.00	1.000	0	0	0.00	00/00/00	99/99/99
42036	TERM RING #6 16-14 GA INS	E	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
42053	TERM FTAB .25 16-14 INS	D	0	F4	EA	7.00	1.000	0	0	0.00	00/00/00	99/99/99
42056	TERM FTAB .25 12-10 INS	C	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
42058	TIE WRAP 3"	A	0	F4	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
42080	TERM FTAB .187 16-14 INS TL2	C	0	F4	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
71002 BLACK-A/R	WIRE HOOK-UP 14 AWG	B	0	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
71002 GREEN-A/R	WIRE HOOK-UP 14 AWG	B	1	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
71002 WHITE-A/R	WIRE HOOK-UP 14 AWG	B	2	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
71005 BLACK-A/R	WIRE HOOK-UP 22 AWG	A	0	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
71005 GREEN-A/R	WIRE HOOK-UP 22 AWG	A	3	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
71005 WHITE-A/R	WIRE HOOK-UP 22 AWG	A	4	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
71013 BLACK-A/R	WIRE 22AWG 1-COND .032INS PVC	A	0	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
71013 WHITE-A/R	WIRE 22AWG 1-COND .032INS PVC	A	5	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99

BILL OF MATERIALS REPORT
SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 715
CABLE ASSEMBLIES
PART: 3700015
DESC: 370 ECG WIRE HARNESS ASBY UOM: EA SC: M7 REV: A

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	-OFFSET FIXED	LD TIME-- VARIABLE	EFFECTIV DATE	INACTIVE DATE
42034	TERM RING #6 22-16 GA INS	D	0	F4	EA	5.00	1.000	0	0	0.00	00/00/00	99/99/99
42071 P5	INDS 5-S .156 22 GA	A	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
71013 BROWN-3"	WIRE 22AWG 1-COND .032INS PVC	A	0	F4	FT	0.25	1.000	0	0	0.00	00/00/00	99/99/99
71013 RED-3"	WIRE 22AWG 1-COND .032INS PVC	A	1	F4	FT	0.25	1.000	0	0	0.00	00/00/00	99/99/99
71013 GREEN-4"	WIRE 22AWG 1-COND .032INS PVC	A	2	F4	FT	0.33	1.000	0	0	0.00	00/00/00	99/99/99
71013 BLACK-5"	WIRE 22AWG 1-COND .032INS PVC	A	3	F4	FT	0.42	1.000	0	0	0.00	00/00/00	99/99/99
71013 WHITE-6"	WIRE 22AWG 1-COND .032INS PVC	A	4	F4	FT	0.50	1.000	0	0	0.00	00/00/00	99/99/99



REV	DESCRIPTION	ECO	DATE	BY
A1	REDRAWN	.	4/3/95	BPS
A	RELEASE TO PRODUCTION	3500	5/29/86	WN

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
PRODUCTION TOLERANCES
.X±.015 ANGULAR TOL.±2°
.XX±.010
.XXX±.005
SURFACE FINISH 63

MATERIAL:

FINISH:

DO NOT SCALE

REMOVE ALL BURRS

BREAK SHARP EDGES

SIGNATURE		DATE
DRN BY:	JR	5/20/86
ENGR:	JS	

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THIRD ANGLE PROJECTION

BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

TITLE:
ECG CABLE HARNESS

SIZE	DRAWING NO.	REV
B	E3700015-AS	A1

SCALE: NONE SHEET 1 OF 1

BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER

AS OF 03/20/95

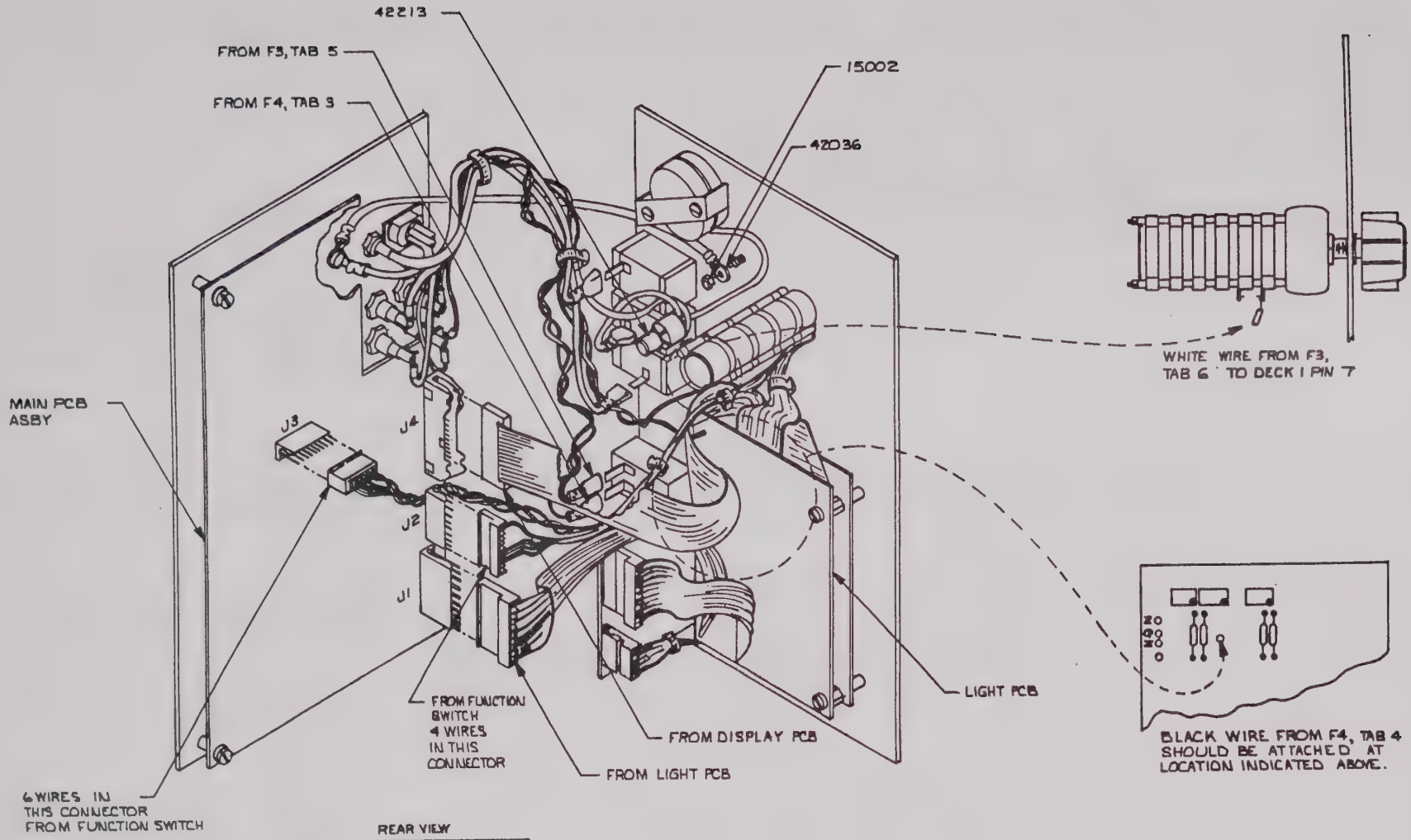
CLASS CODE: 767
SHIPPING ACCESSORY LISTS
PART: 3700016
DESC: SHIPPING ACCESSORIES UOM: EA SC: M9 REV: F

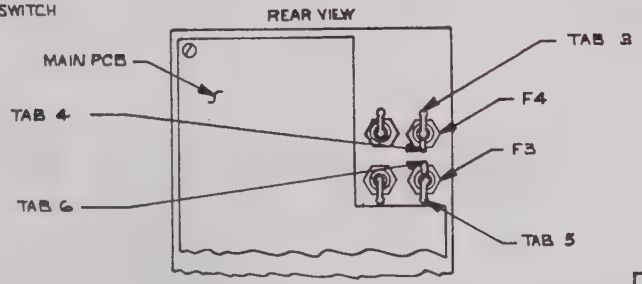
COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	-OFFSET- FIXED	LD TIME-- VARIABLE	EFFECTIV DATE	INACTIVE DATE
3700049	TEST LEAD SET, 2-RTB	A	0	X1	EA	1.00	1.000	0	0	0.00	06/15/87	99/99/99
44140	ACCESSORY POUCH 270	B	0	P3	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
46001	FUSE 1/4A 3AB W/ BOX	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
46007	FUSE 15A SLOW BLOW	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
46036	FUSE 1/10A DUAL E 250V	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
48005	ADAPTER,GROUND	A	0	M6	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
48031	PROBE TERST RED	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
7770014	CLAMP LARGE W/JACK	A	0	M6	EA	1.00	1.000	0	0	0.00	01/06/89	99/99/99
94051	MANUAL ESA370	E	0	P3	EA	1.00	1.000	0	0	0.00	01/06/89	99/99/99
94075	SHIPPING DOCUMENT KIT	C	0	F4	EA	1.00	1.000	0	0	0.00	01/06/89	99/99/99
98011	BAG ZIP-LOCK SMALL	A	0	E3	EA	1.00	1.000	0	0	0.00	01/06/89	99/99/99

BILL OF MATERIALS REPORT
SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 769
FINAL ASSEMBLIES
PART: 3700017
DESC: 370 FINAL ASBY UOM: EA SC: X1 REV: D

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	-OFFSET FIXED	LD TIME-- VARIABLE	EFFECTIV DATE	INACTIVE DATE
2700015	270 CASE ASSEMBLY	E	0	M6	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
3700010	370 FRONT PANEL ASBY	J	0	X1	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
3700016	SHIPPING ACCESSORIES	F	0	M9	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
3700033	SHIPPING LIST	B	0	X1	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
3700046	370 BACK PANEL ASBY	E	0	X1	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99



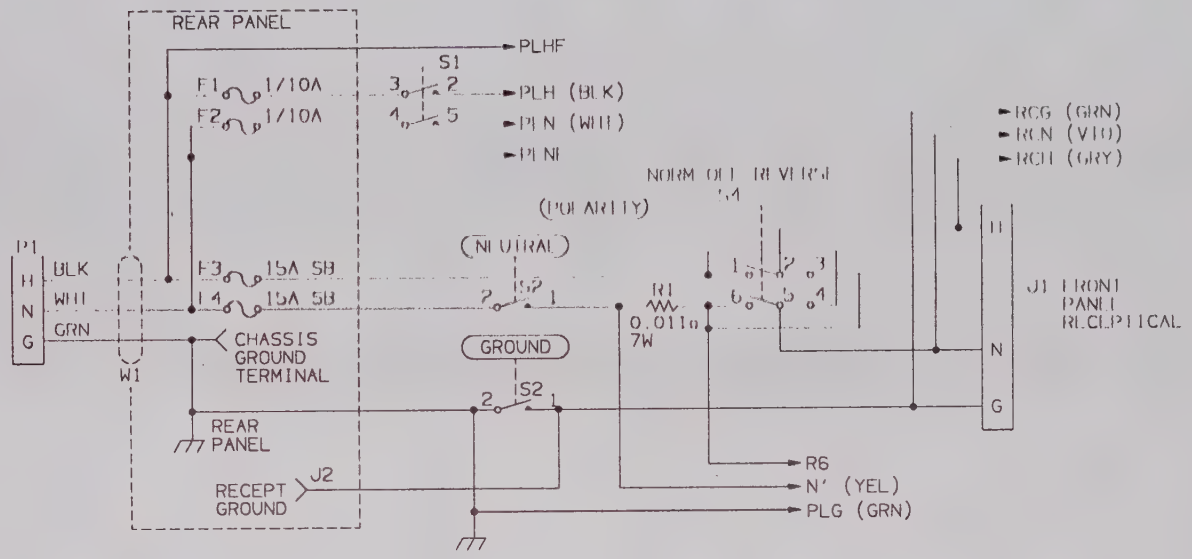


REV	DESCRIPTION	ECO	DATE	BY
A	RELEASE TO PRODUCTION	10031	4/12/86	SA

REV:			
APPROVALS	DATE	BIO-TEK INSTRUMENTS, INC. HIGHLAND PARK, BOX 998 WINOOSKI, VT 05404-0998	
DRAWN: BLW	3-25-86	370 FINAL ASSEMBLY	
ENG: DUNCAN	4-1-86	SCALE:	DRAWING NO: 3700017-AS
MANAGER:	4/1/86	SHEET: 1 OF 1	

19

NOTE:
FUSE RATINGS & LINE CORD COLORS
SHOWN ARE FOR 115V N.AMERICAN
VERSION.



FUSE RATINGS

	LINE VOLTAGE		
FUSE	115V	230V	STYLE
F3 & F4	15A	10A	SLOW
F1 & F2	1/10A	1/32A	SLOW

REV	DESCRIPTION	ECO	DATE	BY
B1	REDRAWN	.	4/10/95	BPS
B	ADD PLHF	5164	10/7/86	BEK
A	RELEASE TO PRODUCTION	3500	5/29/86	WN

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
PRODUCTION TOLERANCES
.X±.015 ANGULAR TOL.±2°
.XX±.010
.XXX±.005
SURFACE FINISH 63
MATERIAL: FINISH:
DO NOT SCALE
REMOVE ALL BURRS
BREAK SHARP EDGES

SIGNATURE	DATE
DRN BY: TAD TK	4/15/86
CHECKED: WN	5/20/86

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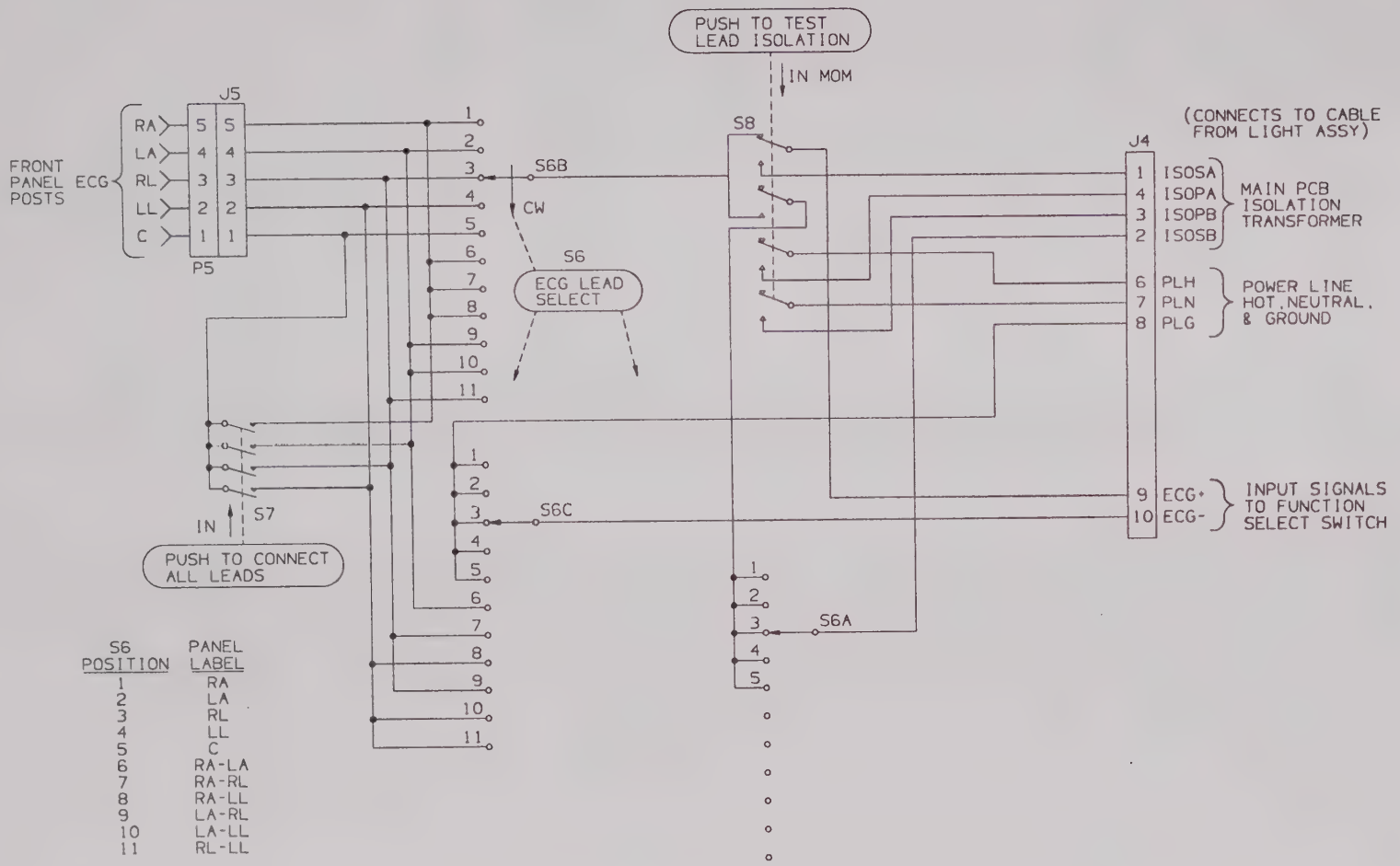
THIRD ANGLE PROJECTION

BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

TITLE:
370 FRONT & REAR
PANEL ASS'Y SCHEMATIC

SIZE	DRAWING NO.	REV
C	E3700028-SC	B1

SCALE: NONE SHEET 1 OF 2



S6 POSITION	PANEL LABEL
1	RA
2	LA
3	RL
4	LL
5	C
6	RA-LA
7	RA-RL
8	RA-LL
9	LA-RL
10	LA-LL
11	RL-LL

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
PRODUCTION TOLERANCES
.X ± .015 ANGULAR TOL. ±2°
.XX ± .010
.XXX ± .005
SURFACE FINISH 63

MATERIAL: FINISH:

DO NOT SCALE | REMOVE ALL BURRS | BREAK SHARP EDGES

SIGNATURE	DATE
DRN BY: TAD TK	4/24/88
CHECKED: WN	5/20/88

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THIRD ANGLE PROJECTION

BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

TITLE:
370 FRONT & REAR
PANEL ASS'Y SCHEMATIC

SIZE	DRAWING NO.	REV
C	E3700028-SC	B1

SCALE: NONE SHEET 2 OF 2

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Bio-Tek Instruments, Inc.

For Model: 370

Procedure: 3700030-TPI

QC Final Test Procedure

REV	DESCRIPTION	ECO#	DATE
A	Release to Production	929	1983
B	Rewrite to accomodate new testing fixture, and for clarification	5036	10-16-86
C	Rewrite for use with a 370	5271	11-17-86
D	Correct spec on step 3	5368	01-06-87
E	Lower front panel gnnd limits to .005ohms	5710	06-12-87
F	Add Variac for flickering neons	5869	09-18-87
G	Add generic S.N 7700107	6174	02-12-88
H	Change chart in page 2	10476	07-27-88
I	Delete burn in, revise steps	11207	01-10-89

EQUIPMENT REQUIRED:

DC millivolt source: Bi tech model #148 or DC millivolt source TP mV-1
One 1 meg resistor, (with banana plugs in both ends)
Receptacle Test Jig
QC 370 test fixture #TF370
Beckman Model 300 #DVM or equivalent

DETAILED PROCEDURE:

1.0 Verify unit has a completed cal sheet with lot # and unit # that matches tag on units.

1.1 Plug the 370 into an outlet and turn it on. Move the function select switch to the systems check and equipment insulation position. observe the following:

a. 370 display reads 1000 ± 10

b. O&K lights on. (O-K-Rev all on for units being run on 230V).

c. With the polarity switch off the two LED's in the grey area. (chassis to neutral, chassis to hot), are green.

1.2 Plug the receptacle test jig into the 370's receptacle. Set the 370 switch as shown below and observe the specified test jig lights are on or off. Verify the O,K, rev neon lights do not flicker.

370 SWITCHES			TEST JIG LIGHTS			230V		
NEUT	GRND	POLARITY	O	K	REV	O	K	REV
Norm	Norm	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Norm	Norm	Norm	ON	ON	OFF	ON	ON	ON
Norm	Norm	Rev	ON	OFF	ON	ON	ON	ON
Norm	Open	Norm	ON	OFF	OFF	ON	ON	ON
Open	Norm	Norm	OFF	ON	OFF	OFF	ON	OFF
						or OFF	OFF	ON

2.0 Unplug receptacle test jig from 370.

2.1 Plug 370 test fixture leads, (as labeled), into single and dual lead jacks of the 370 with the "GND" tab facing down. Take the red single lead(A) from the 370 test fixture and plug it into the top jack of the "dual lead" jack. Take the black single lead(B) and plug it into the bottom jack of the "single lead" jack. Switch the function switch of the 370 to "Dual Lead Resistance OHMS and the 370 test fixture to input leads shorted". Verify the 370's display reads .000 ± .002. Remove the black and red single leads A&B from the 370. Move the test fixture function switch to 1. Verify the unit display reads 1.020 ± .020 OHMS. Press the red button labeled "100 test", verify the unit display reads 100.0 ± 2.0 OHMS.Remove all unit test fixture leads from the 370. Attach a pair of 3700049 test leads to the dual and single input jacks of the 370. Short the test leads together. Verify the display reads .000 ± .002. Remove the "dual-lead" test lead.

2.2 Move the unit function switch to the "Ground Wire" position. Plug the test lead from the "single lead" jack on the 370 to the front panel outlet GND. Observe the 370 display reads between .000 - .005 OHMS. Move the single lead test lead to the Front panel receptacle GND jack on the rear panel. Observe the 370 display reads less than.020 OHMS. Move the "Single lead test lead to the Chassis" jack on the rear panel. The 370 display should read less than .030 OHMS. Open the GND switch. the display should flash

"199.9". Move the GND switch to normal. Move the "single lead" test lead to the front panel receptacle GND jack on the rear panel.

3.0 Switch the function select switch to leakage current (uA) chassis. The display should read 00.0± 0.5.

3.1 Plug a grounded 115V unit into the 370's receptacle,(if unit is 230V, plug a 230V unit into the receptacle). Move the polarity switch to normal. Move the ground switch to the open position, you should get a reading. Move the ground switch back to normal, the meter should read that obtained from step 3.0 or lower. Unplug all connections.

4.0 Set the Beckman on the 200 ACV scale; for 230 set at 500 ACV.

4.1 Measure the line voltage in the 370's receptacle with the Beckman. Switch the 370 to line voltage. The 370 should be within ± 2.0 volts of the Beckman.

WARNING: DURING THIS TEST 115VAC IS APPLIED TO THE ECG JACKS. DO NOT TOUCH THE JACKS DURING THIS TEST!!! (IN STEPS 5.0 & 5.2)

5.0 Switch function select to "ECG Leads". While holding the "Lead Isolation" button in, move the ECG leads rotary to "RA" thru "C". The leakage should not exceed 10mV. For 230V units it should not exceed 20mV.

5.1 Using the DC millivolt source, plug the black lead into the GRD on the receptacle of the 370. Plug the red lead into the RA jack. Turn the millivolt source on, dial in 999.9mV, you shoud get a reading of 1.000 ± .19mV. THis test is just a continuity check for the ECG jacks, proceed and do the same to jacks "LA" thru "C". Moving the ECG leads rotary switch to each position so it corresponds to each jack. Remove the millivolt source from the 370, turn it off.

5.2 Connect a 1 meg ohm resistor between the RA jack and the receptacle GRD. Move the ECG lead switch to RA. Press the lead isolation button in. You should get a reading between 80 and 100 on 370 display, (for 230V units between 134-168V). Turn the 370 off.

6.0 Check to see if the GND lug on the back panel is tight. Install a cal sticker below the "Ground Wire Resistance" Instructions on the rear overlay. Install serial number 7770107 above the line voltage select switch and record the S/N on the Data Sheet.

7.0 Check physical appearance of unit, (no scratches, dirt, etc..). Clean if necessary.

8.0 Place 370 in a plastic bag, apply a run# sticker to the bag. Fill out an R&I and ship the unit to the stockroom.

BILL OF MATERIALS REPORT
==========

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 768
SHIPPING LISTS
PART: 3700033
DESC: SHIPPING LIST UOM: EA SC: X1 REV: B

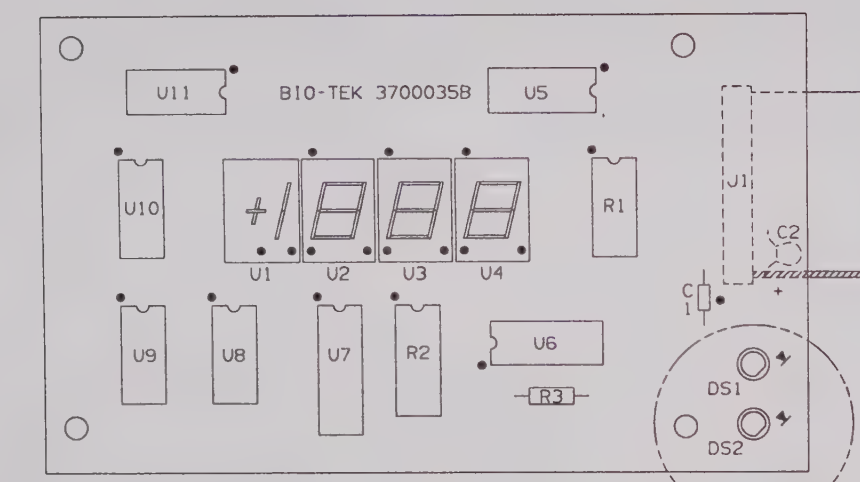
COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET FIXED	LD TIME VARIABLE	EFFECTIV DATE	INACTIVE DATE
91052	BOX 270	A	0	E3	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
91053	FOAM PKG 270 END CAP	A	0	E3	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99

BILL OF MATERIALS REPORT

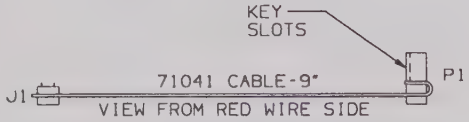
SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER
AS OF 03/20/95

CLASS CODE: 761
PCB ASSEMBLIES
PART: 3700034
DESC: 370 DISPLAY PCB ASBY UOM: EA SC: M5 REV: E

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET FIXED	LD TIME VARIABLE	EFFECTIV DATE	INACTIVE DATE
03006	LED TRI-STATE	B	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
DS1,2												
04001	DSPLY,LED 7 SEG. RED .43"H.	A	0	P2	EA	3.00	1.000	0	0	0.00	00/00/00	99/99/99
U2,3,4												
04002	DSPLY,LED "+1" .43"H.	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
U1												
25007	IC 4511 BCD DRIVE 7-SEG LT	B	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
U6												
25011	IC 4023 NAND 3-IN TRIPLE	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
U8												
25012	IC 4069 HEX INVERTER	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
U10												
25021	IC 4011 NAND 2-IN QUAD	C	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
U9,11												
28014	TRANS ARRAY 2004	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
U5												
28026	IC 2982 A SOURCE DRIVER	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
U7												
32044	RES 20.00K OHM 1% 1/4W	A	0	F4	EA	1.00	1.000	0	0	0.00	09/20/88	99/99/99
R3												
3700035	PCB 370 DISPLAY	B	0	P4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
REV B												
37030	RESNET 100 OHM DIP	A	0	P2	EA	2.00	1.000	0	0	0.00	00/00/00	99/99/99
R1,2												
42157	INSD 26-S .1 x .1 28GA GOLD	C	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
P1												
42201	INDS 26-P .1 X .1 28GA	A	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
J1												
71041	CABLE FLAT 26-COND 28 AWG	A	0	F4	FT	0.75	1.000	0	0	0.00	00/00/00	99/99/99
FT(9")												
82004	CAP 22 uF 15V TANT	C	0	P2	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
C2												
83019	CAP .1 uF 100V DISC	G	0	F4	EA	1.00	1.000	0	0	0.00	00/00/00	99/99/99
C1												



NOTE: U1-U4 MUST BE EVENLY MOUNTED;
NOT TILTED AND FLUSH WITH EACH OTHER.



REV	DESCRIPTION	ECO	DATE	BY
A1	REDRAWN		4/11/95	BPS
A	RELEASE TO PRODUCTION	3080	3/13/86	SP

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
PRODUCTION TOLERANCES
.X± .015 ANGULAR TOL. ±2°
.XX± .010
.XXX± .005
SURFACE FINISH 63

MATERIAL:
FINISH:

DO NOT SCALE
REMOVE ALL BURRS
BREAK SHARP EDGES

THIRD ANGLE PROJECTION

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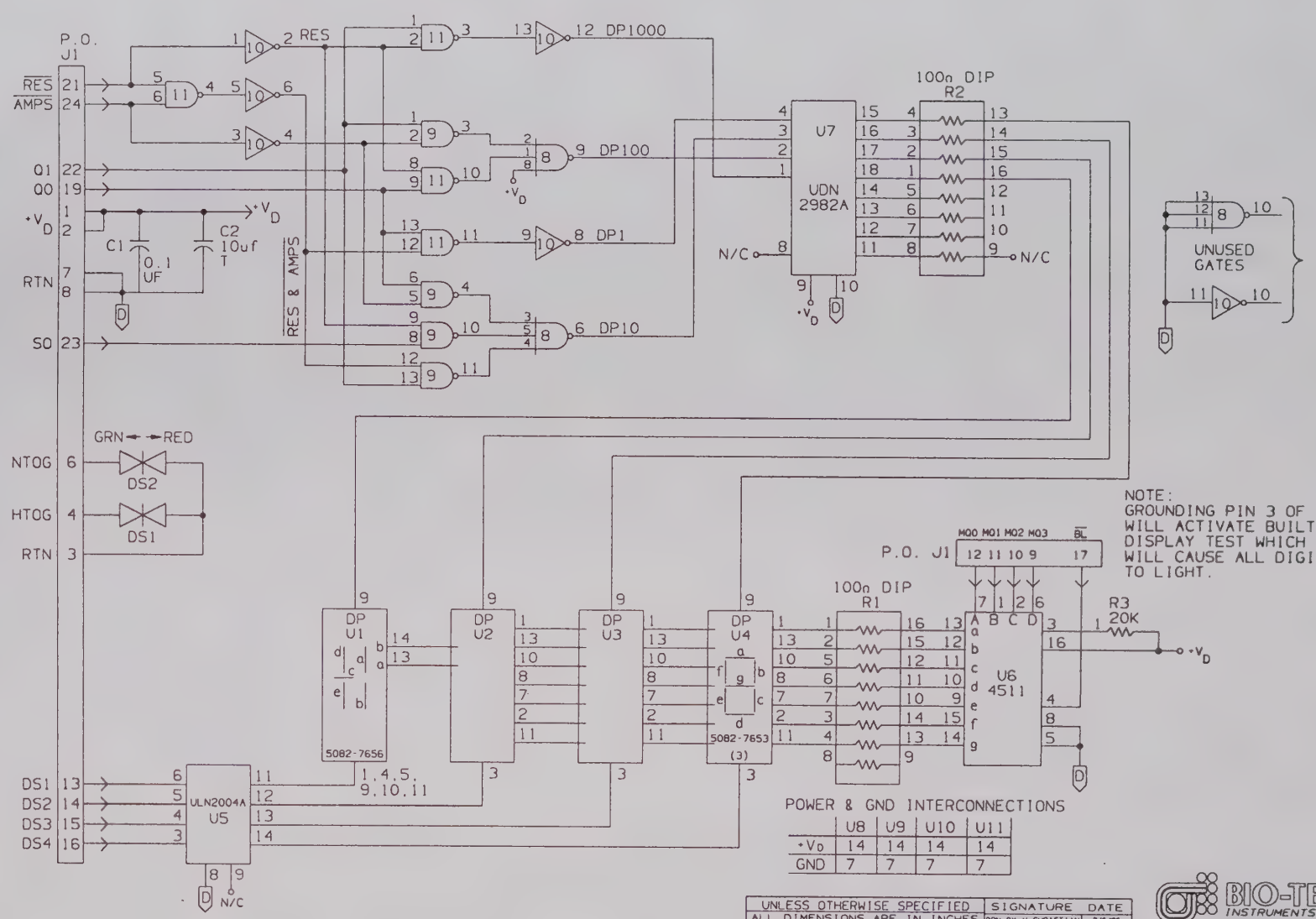
SIGNATURE	DATE
DRN BY: SP	12/13/85
ENGR:	

BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

TITLE: DISPLAY ASBY

SIZE	DRAWING NO.	REV
C	E3700034-AS	A1

SCALE: 2/1 SHEET 1 OF 1



POWER & GND INTERCONNECTIONS

	U8	U9	U10	U11
+VD	14	14	14	14
GND	7	7	7	7

REV	DESCRIPTION	ECO	DATE	BY
A1	REDRAWN		4/11/95	BPS
A	RELEASE TO PRODUCTION	3080	4/1/86	JWS

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
PRODUCTION TOLERANCES
.X±.015 ANGULAR TOL.±2°
.XX±.010
.XXX±.005
SURFACE FINISH 63
MATERIAL:
FINISH:
DO NOT SCALE
REMOVE ALL BURRS
BREAK SHARP EDGES
THIRD ANGLE PROJECTION

SIGNATURE DATE
DRN BY: V. CHRISTIAN 2/6/86
CHECKED: MN 2/12/86

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BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

TITLE:
SCHEMATIC, MODEL 370
DISPLAY & DP DECODE

SIZE C | DRAWING NO. E3700040-SC | REV A1
SCALE: NONE | SHEET 1 OF 1

CONFIDENTIAL

Bio-Tek Instruments, Inc.

Data Sheet

For Model: 370

Procedure: 3700044-DSF

370 Data Sheet

REV	DESCRIPTION	ECO#	DATE
A	Release to Production	5017	8-8-86
B	Revise per ECO	5154	10-15-86
C	Change step 3.0 limits	5266	10-31-86
D	Add 230V limits -- step 12	5332	12-2-86
E	Change spec on receptacle	5710	6-12-87
F	Change step 2.0 to 1000 +/-10ohm	10692	9-15-88

DETAILED DATA:

1.1 Overvoltage Beeper Test _____ ( )

2.0 Input Impedance _____ 1000 ±10 OHM

Micro Amps	Display DC	Display AC	Limits
1900	_____	_____	±19mv
1000	_____	_____	±19mv
500	_____	_____	±19mv
*190	_____	_____	±19mv
100	_____	_____	±1.9mv
50	_____	_____	±1.9mv
19.5	_____	_____	±1.9mv
10	_____	_____	±1.9mv
5.0	_____	_____	±1.9mv

* must be in low range to make reading accurate

3.0 AAMI Curve

Switch Select	Display	Limits
60 Hz	_____	1580 - 1620
1 KHz	_____	1032 - 1230
10 KHz	_____	146.8 - 173.2
100 KHz	_____	12.9 - 26.2

4.0 Line Voltage Adjustment _____

"Dual Lead" Volts Adjustment _____

5.0 DC and AC Volts Linearity

DC Input	Display	Limits (volts)
5.0	_____	4.8 - 5.2
15.0	_____	14.8 - 15.2
25.0	_____	23.0 - 27.0

AC Input	Display	Limits (volts)
50.0	_____	45 - 55
100.0	_____	95 - 105
150.0	_____	145 - 155
200.0	_____	195 - 205
280.0	_____	275 - 285

6.0 Input Resistance	Display	Limits
.500	_____	±.02
1.000	_____	±.02
1.900	_____	±.02
5.00	_____	±.2
10.00	_____	±.2
19.00	_____	±.2
50.00	_____	±.2
100.00	_____	±.2
190.00	_____	±.2

"Power Line GND to Neutral" functions properly ____

7.0 "Ground Wire Resistance" functions properly ____
on front panel receptacle limit .000 - .005

8.0 Amps Calibration

	Display	Limits
Approx. 5A	_____	±.50
Approx. 10A	_____	±.50
Approx. 15A	_____	±.50

9.0 Equipment Ground Insulation Test _____
Readjustment _____
AC only Test _____

10.0 Chassis Leakage _____

11.0 Polarity Function Works Properly _____

12.0 Lead isolation reading for no leads connected is less than or equal to 10mv _____

12.1 Lead isoation reading with all leads connected is less than or equal to 15mv _____

12.2 "ECG Lead Select" switch works properly _____

ECG Lead Leakage		115V	230V
Input	Display	Limits mv	
10uADC	_____	9.8-10.2	9.8-10.2
20uADC	_____	19.8-20.2	19.8-20.2
short	_____	360-450	429-529
1 meg	_____	81-104	160-184

13.0 All pots locked _____

14.0 Physical appearance _____

DEC 1995
BTI
DOCUMENT CRTL.
APPROVED

CONFIDENTIAL

Bio-Tek Instruments, Inc.

Test Procedure

For Model: 370

Procedure: 3700044-TPE

Final Calibration Procedure

REV	DESCRIPTION	ECO#	DATE
A	Release to Production	5017	8-8-86
B	Revise per ECO	5164	10-27-86
C	Add Cal input and Freq. Res instructions	5285	11-5-86
D	Change spec on receptacle	5710	6-12-87
E	Change step 2.1 to 1000 ±10 ohm	10692	9-15-88

EQUIPMENT REQUIRED:

370 Test Station (3700044-TS)
Variacs 120/220 vac.
Beckman or equivalent
51/2 Digit DVM
Model PR plug/cord assembly
Current to voltage converter, "Blue Box"
Equipment capable of drawing more than 15 amps
Function Generator LFG-13005
Banana to BNC lead counter

DETAILED PROCEDURE:

1. Knob Alignment Check:

1.1 Set variac to 120 vac, (monitor this voltage with a Beckman). Make sure that 115/220 voltage on back panel of 370 is in 115 position.

1.2 Plug 370 on the variac and turn 370 power on.

1.3 Turn function select switch until the two LED's which check "Equipment Insulation" are on(green). The display should read 1000.

1.4 Loosen knob with a 5/16" nut driver and position pointer to the "system check and Equ. Insulation" position and tighten.

Over Voltage Beeper Test:

1.5 Leave unit in "Systems Check". Slowly increase variac voltage. At approx. 180 the 370 should begin to beep. If no beep occurs by 220 volts, fail unit.

2.0 Dual Leads (uA, DC, AC) Linearity Test

2.1 With the 370 power on, check the input impedance of the 370 by attaching a Digital Ohmeter to the 370's input jacks. Adjust R19 on the light board assembly until the input impedance is 1000 ± 10.

2.2 Using the test station leads, short all four 370 input jacks together.

2.3 Using a Keithley meter, (or equiv), monitor between the GND TP and TP1, adjust R7 until reading is below 0.010mV.

2.4 Move the Berg Jumper,(near U12), from C&B, to A&B.

2.5 Monitor between the GND TP and TP3. Adjust R69 until DVM reads below 0.050mV.

2.6 Monitor between the GNDTP and pin "C" of berg jumper. Adjust R14 until DVM reads below 0.500mV.

2.7 Replace Berg jumper to pins C&B.

2.8 Input approx. 190.0mV to 370 input Jacks adjust R12 so 370 display reads the same as DVM. NOTE: 370 must be in its lowest range before making adjustment, and when taking data.

2.9 Input approx. 1900mV. Adjust R10 until 370 display reads the same as DVM.

2.10 Using the test stations mV source, monitor and record all AC and DC readings on the Data Sheet. Lock pots.

3.0 Frequency Response Test

3.1 370 "Dual Lead UA" position

3.2 Use function generator. Select sinewave. Connect leads from unit under test to function generator. Monitor frequency with counter and amplitude with DVM 5/2 digit.

3.3 Input to the unit under test a sine wave with the frequencies shown on Data Sheet with an amplitude of 1.6Vrms ± 1.6Vrms. Hold input freq to ± .1% of reading.

3.4 Record data.

4.0 Line Voltage Adjustment

4.1 Select "Line Voltage" volts.

4.2 Monitor variac voltage with a True RMS meter.

4.3 Adjust R1 on 370 light board until 370 reads same as DVM; ±5 Vac. Lock R1; check on Data Sheet.

4.4 Select "Dual Leads" volts, then put 370 polarity switch in the "OFF" position. Connect the special cord inbetween 370 orange outlet and its input jacks. Put polarity switch in "NORMAL" position.

4.5 Switch from "Dual Lead" volts to "Line Voltage" back and forth. Adjust R2 until 370 reads Line Voltage in the "Dual Lead" position. ±5Vac. Lock R2 and check on Data Sheet.

5.0 Dual Lead Volts (DC,AC) Linearity Check

5.1 Select "Dual Lead" volts.

5.2 Input DC and AC from test station's DC source and a variac respectively record data.

6.0 OHM's Test

(Plug 370 into a properly grounded outlet. (Not a variac))

6.1 Disconnect leads from test station. Select "Dual Lead" OHMS.

6.2 Connect the red leads to "VH", "JS" jacks on test station, and the two black leads to "V2", "JR" jacks. Select short on test station. Connect DVM between TP2 and GRND on Main Board. Adjust R33 for a DVM reading of 0.00mV ± .01mV. Move the red lead of DVM to TP3 and adjust R41 for a DVM reading of 0.00mV ± .01mV. Check 370 display, it should read .000 ±.002. Lock pots. Disconnect DVM.

6.3 Select resistances on test station and record data from 370 display.

6.4 Select the "Power Line GND to Neutral" function on the 370. Confirm that 370 reads less than 1.0 ohm.

7.0 Ground Wire Resistance Test

7.1 Select "Ground Wire" res.

7.2 Run a 3700049 test lead from "single" red jacks to front panel receptacle ground. Unit should read .000 - .005.

7.3 Run a 3700049 test lead from "single" red jacks to back panel green jack. Unit should read .000 - .030.

8.0 Amps Calibration and Linearity Check

8.1 Select "Equipment Current" AMPS

8.2 Plug the two heaters into the current to voltage converter. "Blue Box". Monitor voltage with DVM (AC).

8.3 Plug "Blue Box" power cord into 370. Current should be approximately 10 amps, and then let heater run for three minutes, or until readings stabilize.

8.4 Select combinations n heaters for current draw of approximately 15A. DVM will read 1/10 of current draw.

8.5 Adjust R3 on digital board until 370 reads DVM reading ±.50amps.

8.6 Select heater combinations for current draw of 5.10 amps for linearity check. Record data. Lock R3.

9.0 Ground Isolation Test

9.1 Select "Systems Check", and then turn polarity switch to the OFF position.

9.2 The two LED's which check "Equip Insolation" should both be green, and the display should read 1000. If it doesn't, adjust R6 on main PCB until display reads 1000. Lock R6.

9.3 Push "AC only" switch. 370 display should go to zero. Release it and display should read 1000. Check on Data Sheet.

9.4 Plug "A" test fixture into 370 outlet, (readjust if neceesary, R60,61 on main PCB for a clean green on LEDs).
R61 -- Chassis to hot LED
R60 -- Chassis to neutral LED
CHECK FOR:

SW1	SW2	Chassis to Neutral	Chassis to Hot
HOT	900K	GREEN	RED
HOT	1.1M	GREEN	GREEN
NEUT.	900K	RED	GREEN
NEUT.	1.1M	GREEN	GREEN

9.5 Unplug test fixture.

10.0 Chassis Leakage Test

10.1 Select "Chassis Leakage" ua. Turn polarity switch to normal.

10.2 Plug B test fixture into 370 outlet.

10.3 Run front panel red lead to green banana tack on back panel.

10.4 Move 370's GND switch to the open position. Check for a high reading on 370's display. Check on Data Sheet.

11.0 Polarity Function Test

11.1 Connect model PR plug/cord assembly in between 370 and variac.

11.2 Run through all the indicated test and compare to 370. O,K,Rev lights.

MODEL PR TOGGLE
SWITCHES POSITIVE

NEUTRAL	GROUND	POLARITY	O	K	REV
normal	normal	normal	1	1	0
open	normal	normal	0	1	1
normal	open	normal	1	0	0
open	open	normal	0	0	0
normal	normal	Rev	1	0	1
open	normal	Rev	0	1	1
normal	open	Rev	1	0	0
open	open	Rev	0	0	0
normal	normal	normal	1	1	0

11.3 Run through all the indicated tests and compare the test fixture B O,K,Rev neons to the chart below.

370 TOGGLE
SWITCH POSITIVE

NEUTRAL	GROUND	POLARITY	O	K	REV
normal	normal	normal	1	1	0
open	normal	normal	0	1	0
normal	open	normal	1	0	0
open	open	normal	0	0	0
normal	normal	Rev	1	0	1
open	normal	Rev	0	0	1
normal	open	Rev	1	0	0
open	open	Rev	0	0	0

12.0 ECG Lead Test
12.1 Select "ECG Leads" MA.

12.2 Push "Lead Isolation" on 370. Reading 1/4 10mV. Check on Data Sheet.

12.3 Turn test station OFF. Unplug it. Connect ECG cables from test station to 370. Press "Lead Isolation" on 370. Reading 1/4 15mV. Check on Data Sheet.

12.4 Switch both test station and 370 from RA-C and confirm the 370 reads about the same.

12.5 Plug the test station in, and turn it on. Switch "A" on the test station to the 10uA position. Record and compare data.

12.6 ECG lead select switches back to RA. Push the "All leads connected" button on.

12.7 Turn 370's ECG lead select switch from RA through C. Confirms unit reads between 9.8-10.2mV in all positions.

12.8 Push the "All leads Connected" button off.

12.9 Select "short" and "1Mohm" on the test station, then push "Lead Isolation" button on 370 for each and record data.

13.0 Disconnect all leads from 370.
Make sure all pots are locked.
Put unit in its case.
Check physical appearance.
Clean power cord.
Place unit in the proper place for finished inspection/testing to be performed next.

BILL OF MATERIALS REPORT

SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER

AS OF 03/21/95

CLASS CODE: 762
PANEL ASSEMBLIES
PART: 3700046
DESC: 370 BACK PANEL ASBY UOM: EA SC: X1 REV: E

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	RV	ITEM NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET LD FIXED	OFFSET LD VARIABLE	TIME	EFFECTIV DATE	INACTIVE DATE
12029	SCR PAN 6-32X5/16 SS SLOT	A	0	F4	EA	8.00	1.000	0	0		0.00	00/00/00	99/99/99
16003	LKWSHR #6 HELICAL SPR SS	A	0	F4	EA	8.00	1.000	0	0		0.00	00/00/00	99/99/99
19006	RIVET POP AL HEAD/ST SHNK	A	0	F4	EA	4.00	1.000	0	0		0.00	00/00/00	99/99/99
2700005	PANEL 270 BACK	D	0	P3	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
3700013	370 (N AMER) MAIN PCB ASBY	H	0	M5	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
3700019	OVRLY 370 REAR	B	0	P3	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
42004	BANANA JACK GREEN	A	0	P2	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
42008	PLUG HOSP GRA CABLE	B	0	P2	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
42027	TERM RING #8 16-14 INS	C	0	F4	EA	2.00	1.000	0	0		0.00	00/00/00	99/99/99
42036	TERM RING #6 16-14 GA INS	E	0	F4	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
42053	TERM FTAB .25 16-14 INS	D	0	F4	EA	2.00	1.000	0	0		0.00	00/00/00	99/99/99
42056	TERM FTAB .25 12-10 INS	C	0	F4	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
42086	TERM FTAB .25 22-18 INS TL1	C	0	F4	EA	2.00	1.000	0	0		0.00	00/00/00	99/99/99
42218	POST,BINDING BANANA GND.	A	0	P2	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
46007	FUSE 15A SLOW BLOW	A	0	P2	EA	2.00	1.000	0	0		0.00	00/00/00	99/99/99
46016	FUSE HLDR, HI PRO. (SCH.)	B	0	P2	EA	4.00	1.000	0	0		0.00	00/00/00	99/99/99
46017	FUSECARRIER, .25X1.25", (SCH)	A	0	P2	EA	4.00	1.000	0	0		0.00	00/00/00	99/99/99
46036	FUSE 1/10A DUAL E 250V	A	0	P2	EA	2.00	1.000	0	0		0.00	07/01/87	99/99/99
49019	STRANRELF,for 14/3 CABLE	A	0	F4	EA	1.00	1.000	0	0		0.00	00/00/00	99/99/99
49032	CORDWRAP PLASTIC BLACK	A	0	P2	EA	4.00	1.000	0	0		0.00	00/00/00	99/99/99
71001 A/R	POWERCORD 14/3 SJTO	B	0	F4	FT	0.00	1.000	0	0		0.00	00/00/00	99/99/99
71002 A/R,BLACK	WIRE HOOK-UP 14 AWG	B	0	F4	FT	0.00	1.000	0	0		0.00	00/00/00	99/99/99
71002 QTY IS IN FEET, GREEN	WIRE HOOK-UP 14 AWG	B	1	F4	FT	1.50	1.000	0	0		0.00	00/00/00	99/99/99

BILL OF MATERIALS REPORT

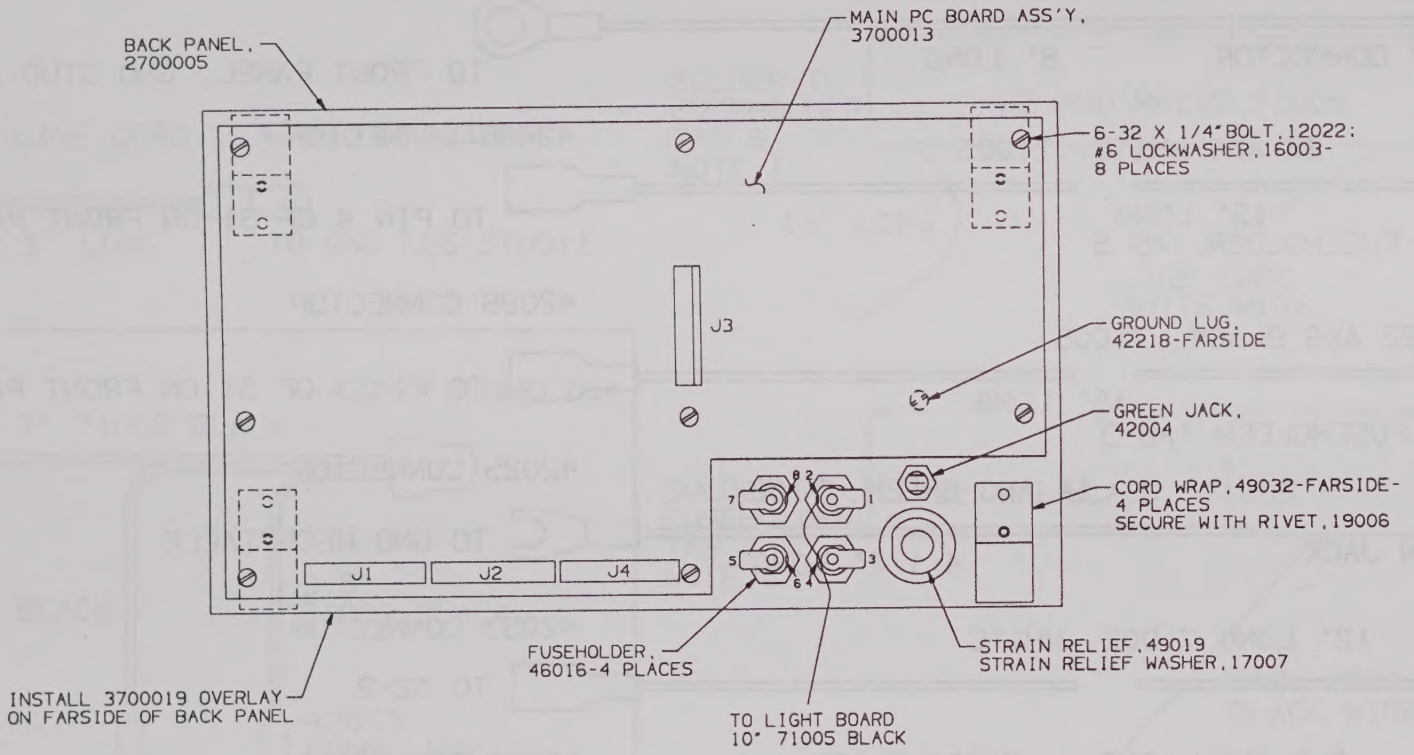
SORTED BY ASSEMBLY PART NUMBER, COMPONENT PART NUMBER

AS OF 03/21/95

CLASS CODE: 762
PANEL ASSEMBLIES
PART: 3700046
DESC: 370 BACK PANEL ASBY UOM: EA SC: X1 REV: E

COMPONENT PART/ REFERENCE INFO	DESCRIPTION	ITEM RV	NUMBR	SC	ST UM	QTY PER ASSEMBLY	YIELD FACTR	OPER SEQ	OFFSET LD TIME-- FIXED	VARIABLE	EFFECTIV DATE	INACTIVE DATE
71002	WIRE HOOK-UP 14 AWG	B	2	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
A/R, WHITE												
71005	WIRE HOOK-UP 22 AWG	A	0	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
A/R,BLACK												
71005	WIRE HOOK-UP 22 AWG	A	3	F4	FT	2.50	1.000	0	0	0.00	00/00/00	99/99/99
QTY IS IN FEET, GREEN												
71005	WIRE HOOK-UP 22 AWG	A	4	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
A/R,WHITE												
71035	SHRINK TUBE 1/4"	A	0	F4	FT	0.00	1.000	0	0	0.00	00/00/00	99/99/99
A/R												
7770106	WASHER STRAIN RELIEF	A	0	P3	EA	1.00	1.000	0	0	0.00	06/19/87	99/99/99

**********END OF REPORT**********



3	C
2	C
1	C1
SHEET	REV

REV	DESCRIPTION	ECO	DATE	BY
C1	REDRAWN	.	4/12/95	BPS
C	CHANGE GND RECEPTACLE	5710	8/18/87	SP
B	ADD 10" 71005 BLACK WIRE	5184	10//86	BEK
A	RELEASE TO PRODUCTION			

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
PRODUCTION TOLERANCES
.X±.015 ANGULAR TOL.±2°
.XX±.010
.XXX±.005
SURFACE FINISH 63

MATERIAL: FINISH:

DO NOT SCALE | REMOVE ALL BURRS | BREAK SHARP EDGES

SIGNATURE	DATE
DRN BY: JR	8/12/86
ENGR:	

THIRD ANGLE PROJECTION

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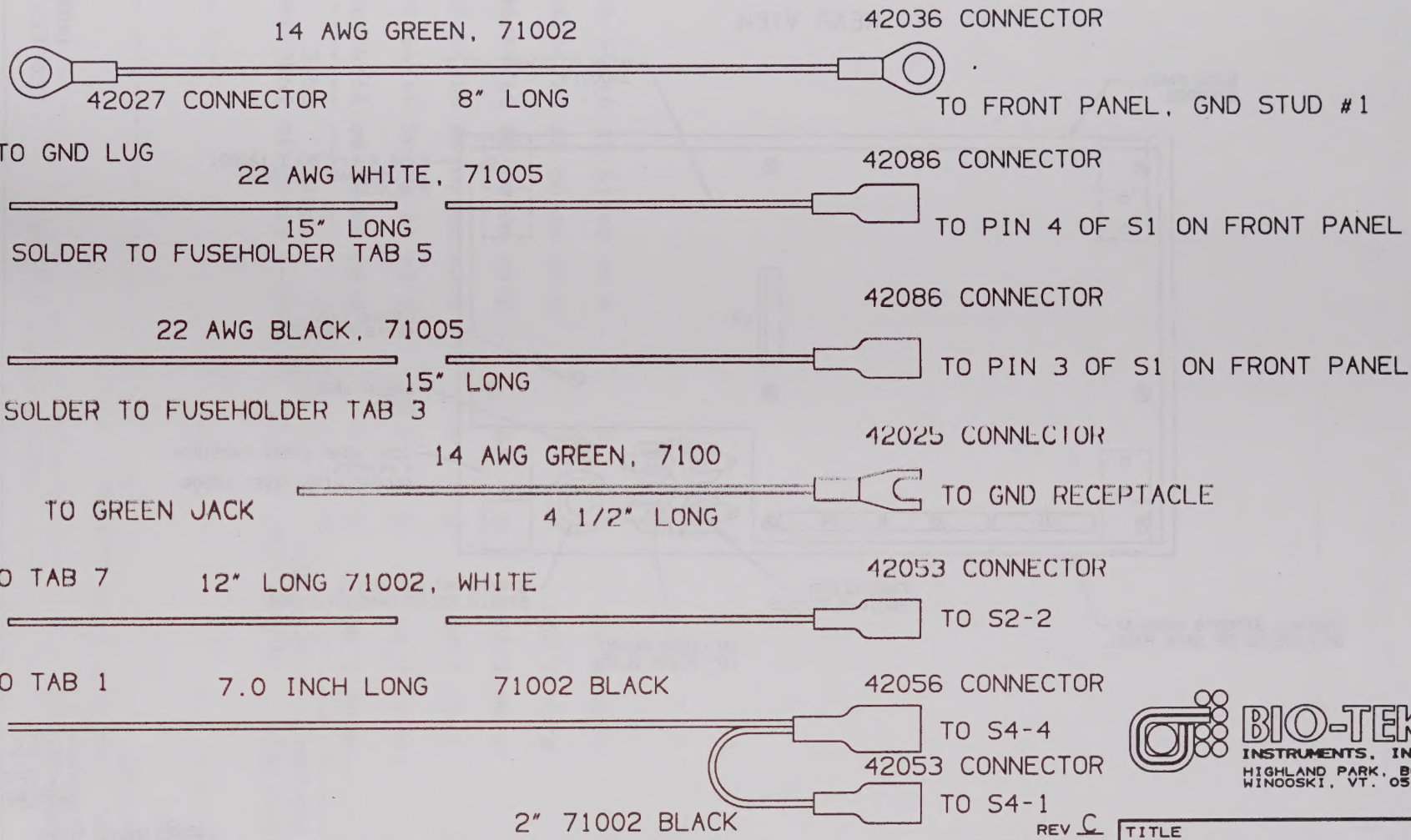
BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

TITLE:
BACK PANEL ASS'Y

SIZE	DRAWING NO.	REV
C	E3700046-AS	C1

SCALE: 1/1 SHEET 1 OF 3

53



BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

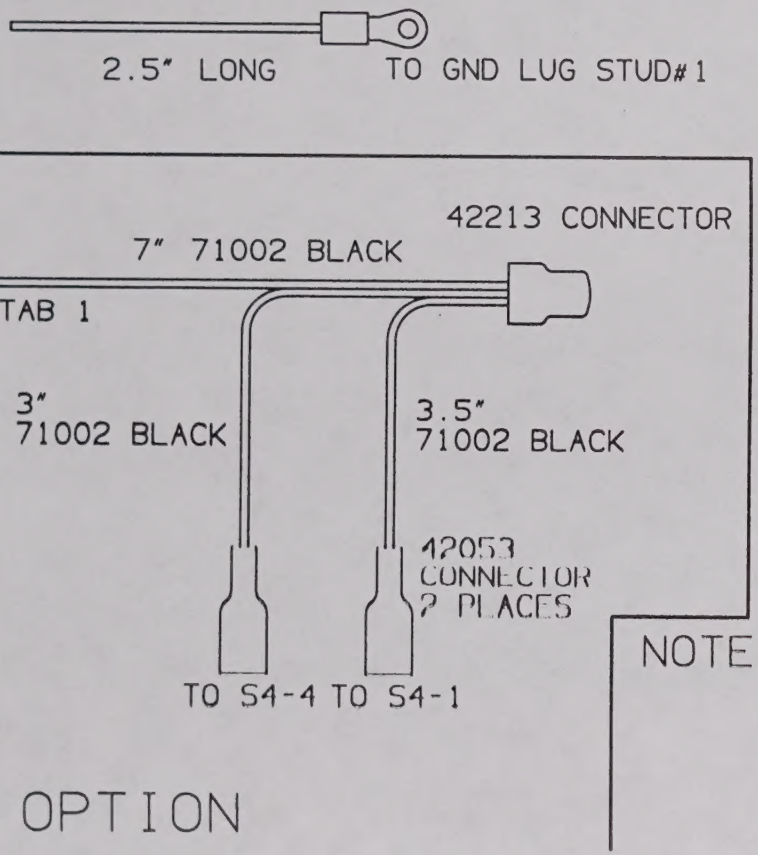
REV C

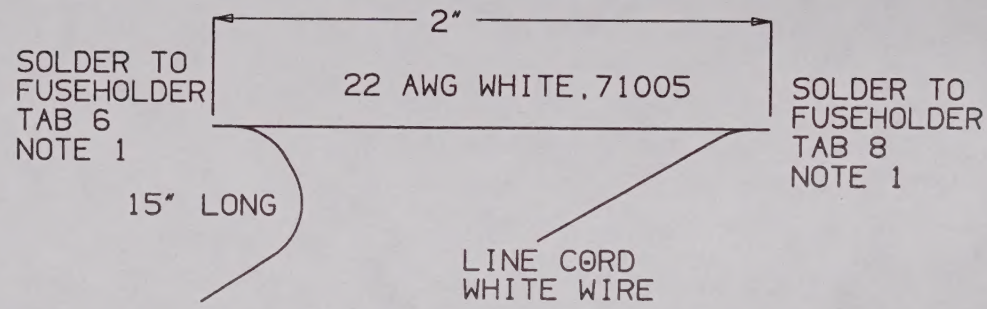
SIGNATURES	DATE
DRAWN JMR	7/29/86
CHECKED	
SCALE N.T.S	
SHEET 2 OF 3	

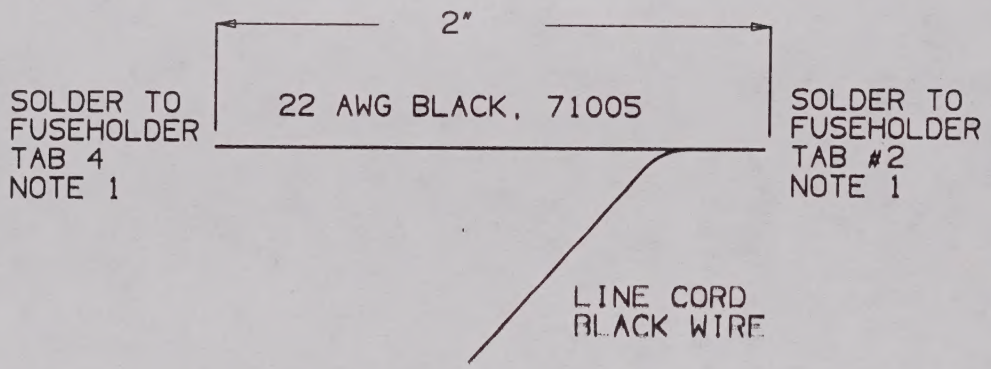
TITLE
BACK PANEL ASSEMBLY

DRAWING NO.
3700046-AS

54







NOTE 1: SHRINK 1" PIECE OF HEAT SHRINK OVER TABS 1,2,3,4,5,6,8

BIO-TEK INSTRUMENTS, INC.
HIGHLAND PARK, BOX 998
WINOOSKI, VT. 05404-0998

REV C

SIGNATURES	DATE
DRAWN JMR	7/30/88
CHECKED	
SCALE N.T.S	
SHEET 3 OF 3	

TITLE
BACK PANEL ASSEMBLY

DRAWING NO.
3700046-AS